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L70 ANSWER 1 OF 29 MEDLINE
AN **2001544335** MEDLINE
DN **21475351** PubMed ID: **11591235**
TI Effects of two fermentable carbohydrates (inulin and **resistant starch**) and their combination on calcium and magnesium balance in rats.
AU Younes H; Coudray C; Bellanger J; Demigne C; Rayssiguier Y; Remesy C
CS Centre de Recherche en Nutrition Humaine d'Auvergne, Unite Maladies Metaboliques et Micronutriments, Centre de Recherche INRA Clermont-Ferrand/Theix, 63122 Saint-Genes-Champanelle, France.
SO BRITISH JOURNAL OF NUTRITION, **(2001 Oct)** 86 (4) 479-85.
Journal code: 0372547. ISSN: 0007-1145.
CY England: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200112
ED Entered STN: 20011010
Last Updated on STN: 20020122
Entered Medline: 20011205
AB **Resistant starch** and inulin are complex carbohydrates that are fermented by the microflora and known to increase colonic absorption of minerals in animals. The fermentation of these substrates in the large bowel to short-chain fatty acids is the main reason for this increase in mineral absorption. The purpose of the present study was to examine the potential synergistic effect of a combination of these two fermentable carbohydrates. For this purpose, thirty-two adult male Wistar rats weighing 200 g were used in the present study. The rats were distributed into four groups, and fed for 21 d a fibre-free basal purified diet or diet containing 100 g inulin, or 150 g **resistant starch** (raw potato **starch**)/kg diet or a blend of 50 g inulin and 75 g **resistant starch**/kg diet. After an adaptation period of 14 d, the rats were then transferred to metabolic cages and dietary intake, faeces and urine were monitored for 5 d. The animals were then anaesthetized and caecal Ca and Mg absorption were measured. Finally, the rats were killed and blood, caecum and tissues were sampled. Ca and Mg levels were assessed in diets, faeces, urine, caecum and plasma by atomic absorption spectrometry. Our results confirmed that inulin and **resistant starch** ingestion led to considerable caecal fermentation in the three experimental groups compared with the control group diet. Moreover, both carbohydrates significantly increased the intestinal absorption and balance of Ca and Mg, without altering the plasma level of these two minerals. Interestingly, the combination of the studied carbohydrates increased significantly the caecal soluble Ca and Mg concentrations, the apparent intestinal absorption and balance of Ca, and non-significantly the plasma Mg level. In conclusion, a combination of different carbohydrates showed

synergistic effects on intestinal Ca absorption and balance in rats. Further studies with other types of carbohydrate combinations should be carried out to extend these findings.

CT Check Tags: Animal; Male
Calcium: BL, blood
***Calcium: ME, metabolism**
***Cecum: ME, metabolism**
***Dietary Carbohydrates: AD, administration & dosage**
Fatty Acids, Volatile
Fermentation
*Intestinal Absorption
Inulin: AD, administration & dosage
Magnesium: BL, blood
***Magnesium: ME, metabolism**
Rats
Rats, Wistar
Spectrophotometry, Atomic Absorption
Starch: AD, administration & dosage

RN 7439-95-4 (Magnesium); 7440-70-2 (Calcium); **9005-25-8 (Starch)**; 9005-80-5 (Inulin)
CN 0 (Dietary Carbohydrates); 0 (Fatty Acids, Volatile)

L70 ANSWER 2 OF 29 MEDLINE
AN **2001536572** MEDLINE
DN **21468236** PubMed ID: **11584095**
TI Heat moisture treatment of high **amylose cornstarch** increases its **resistant starch** content but not its physiologic effects in rats.
AU Kishida T; Nogami H; Himeno S; Ebihara K
CS Department of Biological Resources, Faculty of Agriculture, Ehime University, Matsuyama 790, Japan.
SO JOURNAL OF NUTRITION, **(2001 Oct)** 131 (10) 2716-21.
Journal code: 0404243. ISSN: 0022-3166.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200111
ED Entered STN: 20011004
Last Updated on STN: 20011105
Entered Medline: 20011101

AB To examine whether the physiologic effects of high **amylose cornstarch** (HACS) are affected by gelatinization or heat moisture treatment, male rats were fed for 21 d a fiber-free purified diet containing 40 g/100 g gelatinized normal **cornstarch** (G-CS), HACS, gelatinized high **amylose cornstarch** (G-HACS) or heat moisture-treated HACS (HMCS). Dietary fiber (DF) content in G-HACS was 87% lower than that in HACS. The apparent **starch** and protein digestibilities were higher in the G-HACS group than in the HACS group. Fecal wet weight and fecal bile acid excretion were lower in the G-HACS group than in the HACS group. The cecal tissue weight, cecal surface area, cecal content weight and cecal pH were lower in the G-HACS group than in the HACS group. The cecal n-butyric acid and succinic acid concentrations were higher and lower, respectively, in the G-HACS group than in the HACS group. The plasma cholesterol and triacylglycerol concentrations did not differ between the G-HACS group and the HACS group. On the other hand, the DF content in HMCS was 330% higher than that in HACS, but the HMCS and HACS groups generally did not differ except in cecal surface area. Dietary **starch** did not affect fecal moisture, fecal neutral sterol (cholesterol + coprostanol) excretion, liver cholesterol level, total short-chain fatty acid (SCFA) concentration or apparent Ca, Fe, Mg and Zn absorptions. These results show that the heat moisture treatment of HACS for the most part does not alter its

physiologic effects despite the greater DF content.
CT Check Tags: Animal; Male; Support, Non-U.S. Gov't
***Amylose: PH, physiology**
Analysis of Variance
Body Weight: DE, drug effects
Cholesterol: BL, blood
Dietary Fiber: ME, metabolism
*Dietary Fiber: PD, pharmacology
Digestion: DE, drug effects
Heat
Rats
Rats; Wistar
RN 57-88-5 (Cholesterol); **9005-82-7 (Amylose)**

L70 ANSWER 3 OF 29 MEDLINE
AN **2001229839** MEDLINE
DN **21199858** PubMed ID: **11321026**
TI Non-polyol low-digestible carbohydrates: food applications and functional benefits.
AU Murphy O
CS Leatherhead Food Research Association, Surrey, UK.. omurphy@ifra.co.uk
SO BRITISH JOURNAL OF NUTRITION, **(2001 Mar)** 85 Suppl 1 S47-53.
Ref: 51
Journal code: 0372547. ISSN: 0007-1145.
CY England: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LA English
FS Priority Journals
EM 200104
ED Entered STN: 20010502
Last Updated on STN: 20010502
Entered Medline: 20010426
AB Many LDCs currently on the market are not digested in the upper gastrointestinal tract and become fermented in the large intestine. They possess physiological benefits similar to those of dietary fibre. For some of these materials the fermentation process is highly specialised and leads to the selective stimulation and growth of beneficial gut bacteria, e.g. bifidobacteria. These materials are described as prebiotics, which are defined as nutrients fermented in the large bowel that favour the growth of desirable large bowel microflora. This activity has been demonstrated for inulin and oligofructose. Two other carbohydrates with low digestibility that offer desirable physiological properties are **resistant starch** (RS) and polydextrose (PD). These 'functional benefits have led to considerable interest from the food industry leading to the use of these ingredients in the development of new 'healthy' products. This paper describes the use of these materials in the development of 'healthy' products, some of their functional properties, and the benefits they confer on different food systems.
CT Check Tags: Human
***Dietary Carbohydrates: ME, metabolism**
Dietary Fiber: ME, metabolism
Digestion
*Food, Formulated
Health Food
Inulin: ME, metabolism
Oligosaccharides: ME, metabolism
RN 9005-80-5 (Inulin)
CN 0 (Dietary Carbohydrates); 0 (Oligosaccharides)

L70 ANSWER 4 OF 29 MEDLINE
AN **2001162694** MEDLINE

DN **21162848** PubMed ID: **11262066**
TI In vitro study of possible role of dietary fiber in lowering **postprandial** serum **glucose.**
AU Ou S; Kwok K; Li Y; Fu L
CS Research Center of Food Science and Technology, Jinan University, Guangzhou 510632, People's Republic of China.. tosy@jnu.edu.cn
SO JOURNAL OF AGRICULTURAL AND FOOD CHEMISTRY, **(2001 Feb)** 49 (2) 1026-9.
Journal code: 0374755. ISSN: 0021-8561.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200105
ED Entered STN: 20010529
Last Updated on STN: 20010529
Entered Medline: 20010524
AB There have been many reports concerning the role of dietary fiber in lowering **postprandial** serum **glucose**, and the main mechanism was regarded as the viscosity of different dietary fibers in hampering diffusion of **glucose** and postponing absorption and digestion of carbohydrates. In this paper, two kinds of water-insoluble dietary fibers, water-insoluble dietary fiber of wheat bran and enzyme-**resistant starch** of maize **amylose**, and four kinds of water-soluble dietary fibers, water-soluble dietary fiber of wheat bran, carboxymethyl cellulose, guar gum, and xanthan gum, were used to investigate their **postprandial** serum **glucose** lowering mechanism in vitro. The results showed that these dietary fibers lowered **postprandial** serum **glucose** levels at least by three mechanisms. First, dietary fibers increase the viscosity of small intestine juice and hinder diffusion of **glucose**; second, they bind **glucose** and decrease the concentration of available **glucose** in the small intestine; and, third, they retard alpha-amylase action through capsuling **starch** and the enzyme and might directly inhibit the enzyme. All of these decreased the absorption rate of **glucose** and the concentration of **postprandial** serum **glucose.**
CT Check Tags: Comparative Study; Human
Adsorption
***Blood Glucose: DE, drug effects**
Blood Glucose: ME, metabolism
*Dietary Fiber
Dietary Fiber: PD, pharmacology
***Glucose: CH, chemistry**
***Postprandial Period**
Potatoes
Starch: ME, metabolism
***alpha-Amylase: ME, metabolism**
RN **50-99-7 (Glucose); 9005-25-8 (Starch)**
CN 0 (Blood **Glucose**); EC 3.2.1.1 (alpha-Amylase)

L70 ANSWER 5 OF 29 MEDLINE
AN **2001150592** MEDLINE
DN **21095261** PubMed ID: **11177182**
TI Potato and high-**amylose maize starches** are not equivalent producers of butyrate for the colonic mucosa.
AU Martin L J; Dumon H J; Lecannu G; Champ M M
CS Ecole Nationale Veterinaire, Laboratoire de Nutrition et Alimentation, CP 3013, 44087 Nantes Cedex 03, France.
SO BRITISH JOURNAL OF NUTRITION, **(2000 Nov)** 84 (5) 689-96.
Journal code: 0372547. ISSN: 0007-1145.
CY England: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)

LA English
FS Priority Journals
EM 200103
ED Entered STN: 20010404
Last Updated on STN: 20010404
Entered Medline: 20010315
AB Portal appearance of short-chain fatty acids (SCFA) produced from fermentation of three different **resistant starch** (RS) sources (raw potato **starch**, high-**amylose maize** **starch** and retrograded high-**amylose maize** **starch**) was investigated in pigs. The catheterization technique coupled with determination of portal blood flow was used to estimate SCFA uptake by the colonic mucosa. Our hypothesis was that these three RS were not equivalent butyrate providers for the colonic mucosa and that butyrate uptake would therefore be different after in vivo fermentation of each **starch**. The **starches** induced different patterns of appearance of SCFA in the portal blood; raw potato **starch** was the only RS source to show a significant appearance of butyrate in the portal blood. Thus, uptake of butyrate by the colonic mucosa apparently differed between **starches**. This finding suggests that butyrate uptake does not only depend on the flow of butyrate appearing in the lumen. Indeed, for unexplained reasons, utilization of butyrate by the colonic mucosa appeared to be less efficient when the butyrate was produced from fermentation of potato **starch** than when it was produced from fermentation of the other RS sources.
CT Check Tags: Animal; Female
***Amylose: PD, pharmacology**
Butyrates: BL, blood
***Butyrates: ME, metabolism**
Catheterization
***Colon: ME, metabolism**
Colonic Neoplasms: PC, prevention & control
Fatty Acids, Volatile: BL, blood
***Fatty Acids, Volatile: ME, metabolism**
Intestinal Absorption: PH, physiology
Intestinal Mucosa: ME, metabolism
Portal System: PH, physiology
Potatoes
Starch: AD, administration & dosage
***Starch: PD, pharmacology**
Swine
RN **9005-25-8 (Starch); 9005-82-7 (Amylose)**
CN 0 (Butyrates); 0 (Fatty Acids, Volatile)

L70 ANSWER 6 OF 29 MEDLINE
AN **2000416205** MEDLINE
DN **20380482** PubMed ID: **10919938**
TI Digestion of so-called **resistant starch** sources in the human small intestine.
AU Vonk R J; Hagedoorn R E; de Graaff R; Elzinga H; Tabak S; Yang Y X; Stellaard F
CS Department of Pediatrics, Laboratory of Nutrition and Metabolism, University Hospital and University of Groningen, Netherlands.. r,j,vonk@med.rug.nl
SO AMERICAN JOURNAL OF CLINICAL NUTRITION, **(2000 Aug)** 72 (2) 432-8. Journal code: 0376027. ISSN: 0002-9165.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals; Priority Journals
EM 200008
ED Entered STN: 20000907
Last Updated on STN: 20000907

Entered Medline: 20000829

AB BACKGROUND: **Resistant starch** sources, which are only partially digested in the small intestine, can be used to increase colonic availability of short-chain fatty acids. OBJECTIVE: To study the characteristics of the fermentation of **resistant starch**, the digestion of **resistant starch** in the small intestine has to be quantified. We compared the metabolic fates of highly digestible **cornstarch** (DCS), Hylon VII (type 2 **resistant starch**), and Novelose 330 (type 3 **resistant starch**), which are of corn origin and, therefore, naturally enriched in (13)C. DESIGN: After administration of 40 g **starch** or **glucose** to 7 healthy volunteers, **glucose** and exogenous **glucose** concentrations in serum and (13)CO(2) excretion in breath were analyzed for 6 h. (13)C abundance in carbon dioxide was analyzed by isotope ratio mass spectrometry (IRMS) and (13)C abundance in **glucose** by gas chromatography-combustion IRMS. RESULTS: By comparing the area under the curve (2 h) of exogenous **glucose** concentration in serum ((13)C glycemic index) after intake of **starch** or **glucose**, (13)C glycemic indexes for DCS, Hylon VII, and Novelose 330 were calculated to be 82 +/- 23%, 44 +/- 16%, and 43 +/- 15%, respectively. Comparison of 6-h cumulative percentage dose recovery in breath showed that 119 +/- 28% of DCS, 55 +/- 23% of Hylon VII, and 50 +/- 26% of Novelose 330 was digested in the small intestine. CONCLUSION: The exogenous **glucose** response in serum and the (13)CO(2) excretion in breath can be used to estimate small intestinal digestion of **resistant starch**, which amounts to approximately 50%.

CT Check Tags: Female; Human; Male; Support, Non-U.S. Gov't
Adult
Area Under Curve
Blood Glucose: ME, metabolism
Breath Tests
Carbon Dioxide: ME, metabolism
Carbon Isotopes
*Digestion
Intestine, Small: ME, metabolism
*Intestine, Small: PH, physiology
Reference Values
***Starch: PK, pharmacokinetics**

RN 124-38-9 (Carbon Dioxide); **9005-25-8 (Starch)**

CN 0 (Blood **Glucose**); 0 (Carbon Isotopes)

L70 ANSWER 7 OF 29 MEDLINE

AN **1999026390** MEDLINE

DN **99026390** PubMed ID: **9808661**

TI Apparent digestibility of a debranched amylopectin-lipid complex and **resistant starch** incorporated into enteral formulas fed to ileal-cannulated dogs1.

AU Murray S M; Patil A R; Fahey G C Jr; Merchen N R; Wolf B W; Lai C S; Garleb K A

CS Department of Animal Sciences, University of Illinois, Urbana, IL 61801 USA.

SO JOURNAL OF NUTRITION, **(1998 Nov)** 128 (11) 2032-5.
Journal code: 0404243. ISSN: 0022-3166.

CY United States

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199812

ED Entered STN: 19990115
Last Updated on STN: 19990115
Entered Medline: 19981207

AB The purpose of this study was to evaluate apparent digestibility in

ileal-cannulated dogs fed enteral diets containing a debranched amylopectin-lipid complex (V-complex) or **resistant starch**. Six ileal-cannulated dogs were randomized into a replicated 3 x 3 Latin square design for determination of digestibility of three experimental treatments. Dietary treatments were as follows: 1) control; 2) V-complex; and 3) **resistant starch**. Diets were similar in chemical composition. Apparent digestibility of dry matter (DM), organic matter (OM) and carbohydrate by dogs fed the control diet was higher ($P < 0.05$) than for dogs consuming the other diets. Mean apparent digestibilities of carbohydrate for the control, V-complex and **resistant starch** diets were 89, 76 and 43%, respectively. Both DM and carbohydrate digestibility were lower ($P < 0.05$) for **resistant starch** compared with V-complex. Fecal dry and wet weights for dogs fed the control diet were lower ($P < 0.05$) than for those receiving either the **resistant starch** or V-complex treatments. Dogs fed the V-complex diet produced approximately 90 g less feces per day than dogs fed **resistant starch**. Dietary incorporation of V-complex to replace traditional carbohydrates may be beneficial for diabetic patients because of the decreased digestibility and subsequent **glucose** absorption rate. Furthermore, incorporation of **resistant starch** into enteral formulas may improve gastrointestinal tract health status as a result of increased fecal bulk, potential dilution of toxins in the intestinal lumen and greater production of short-chain fatty acids.

CT Check Tags: Animal; Female
***Amylopectin: ME, metabolism**
Dietary Carbohydrates: ME, metabolism
Dietary Proteins: ME, metabolism
*Digestion
Dogs
Eating
*Enteral Nutrition
Feces
Ileum: ME, metabolism
***Lipids: ME, metabolism**
***Starch: ME, metabolism**

RN **9005-25-8 (Starch)**; 9037-22-3 (Amylopectin)
CN 0 (Dietary Carbohydrates); 0 (Dietary Proteins); 0 (Lipids)

L70 ANSWER 8 OF 29 MEDLINE
AN **97283505** MEDLINE
DN **97283505** PubMed ID: **9137637**
TI Bioavailability of carbohydrates in legumes: digestible and indigestible fractions.
AU Tovar J
CS Centro de Biologia Celular, Facultad de Ciencias, Universidad Central de Venezuela.
SO ARCHIVOS LATINOAMERICANOS DE NUTRICION, **(1996 Dec)** 44 (4 Suppl 1) 36S-40S.
Journal code: 0067507. ISSN: 0004-0622.
CY Venezuela
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199707
ED Entered STN: 19970724
Last Updated on STN: 19970724
Entered Medline: 19970715
AB Despite their important contribution to seed weight, carbohydrates in pulses have received limited attention. However, experimental evidence accumulated during the last two decades indicate that legumes are rich sources of slowly digestible **starch** promoting moderate

postprandial glycernic and **insulinemic** responses.
Although the reasons for this phenomenon are not completely understood, some intrinsic properties of the **starch** itself and the microstructure of cotyledon cells appear to determine much of the slow release character. This beneficial feature is rather sensitive to thermal and mechanical processing. A minimum of 10% of the **starch** occurring in common beans and lentils escapes digestion and absorption in the normal small intestine, and is therefore referred to as " **resistant starch**". This material consists mainly of retrograded **amylose** fractions generated upon cooling of wet-heated pulses. Physically inaccessible **starch** fractions resulting from cotyledon microstructural properties may also contribute to incomplete digestibility, accounting for up to 40% of the indigestible **starch**. These indigestible **starch** fractions are fermented in the large intestine generating gases and volatile fatty acids, compounds that have important influence on the physiology of the colonic mucosa and peripheral metabolism.

CT Check Tags: Human; Support, Non-U.S. Gov't
Biological Availability
***Dietary Carbohydrates: ME, metabolism**
Dietary Carbohydrates: PK, pharmacokinetics
*Fabaceae
*Plants, Medicinal
Starch: ME, metabolism
RN **9005-25-8 (Starch)**
CN 0 (Dietary Carbohydrates)

L70 ANSWER 9 OF 29 MEDLINE
AN **97192967** MEDLINE
DN **97192967** PubMed ID: **9040559**
TI Lipid metabolism is altered by nebacitin in rats fed cooked-stored polished rice as the only dietary carbohydrate with or without exogenous cholesterol.
AU Cheng H H; Yu W W
CS School of Nutrition and Health Science, Taipei Medical College, Taiwan.
SO JOURNAL OF NUTRITION, **(1997 Jan)** 127 (1) 153-7.
Journal code: 0404243. ISSN: 0022-3166.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199703
ED Entered STN: 19970327
Last Updated on STN: 19970327
Entered Medline: 19970319
AB Male adult Wistar rats were randomly divided into four groups in a 2 x 2 factorial design and were fed diets containing cooked-stored polished rice (CSPR), with and without 0.7 g/100 g of Nebacitin [bacitracinneomycin sulfate (2:1, wt/wt)] and with and without 1 g cholesterol/100 g diet. The CSPR diet contained 1.87 g **resistant starch**/100 g.
After 4 wk, arterial blood and liver were collected. Feces were collected during the last 7 d. Rats fed the diet with Nebacitin and cholesterol had higher serum total cholesterol than the rats fed diets without cholesterol. Serum triglyceride concentration was greater in rats fed Nebacitin, regardless of dietary cholesterol concentration. Rats fed the diet with Nebacitin and cholesterol had higher serum LDL cholesterol concentration and liver total cholesterol concentration than rats fed the other three diets. Rats fed the CSPR diet with Nebacitin both with and without cholesterol had a higher fecal **resistant starch** concentration and excretion and lower serum short-chain fatty acid concentration than rats fed the diets without Nabacitin. Hepatic cholesterol concentration was greater in rats fed Nebacitin only when the diet also contained cholesterol. Therefore, dietary Nebacitin alters

lipid metabolism in rats, and some effects are most pronounced in those also fed cholesterol.

CT Check Tags: Animal; Comparative Study; Male; Support, Non-U.S. Gov't
***Anti-Inflammatory Agents, Non-Steroidal: ME, metabolism**
Bacitracin: PD, pharmacology
Cholesterol: AD, administration & dosage
Cholesterol: BL, blood
Cholesterol: ME, metabolism
***Dietary Carbohydrates: AD, administration & dosage**
Feces: CH, chemistry
***Lipids: ME, metabolism**
Liver: ME, metabolism
Neomycin: PD, pharmacology
Oryza sativa
Rats
Rats, Wistar
Triglycerides: BL, blood

RN 1404-04-2 (Neomycin); 1405-87-4 (Bacitracin); 57-88-5 (Cholesterol); 8025-63-6 (Nebacetin)

CN 0 (Anti-Inflammatory Agents, Non-Steroidal); 0 (Dietary Carbohydrates); 0 (Lipids); 0 (Triglycerides)

L70 ANSWER 10 OF 29 MEDLINE

AN **97097880** MEDLINE

DN **97097880** PubMed ID: **8942421**

TI Effect of high-**amylose starch** and oat bran on metabolic variables and bowel function in subjects with hypertriglyceridemia.

AU Noakes M; Clifton P M; Nestel P J; Le Leu R; McIntosh G

CS CSIRO Division of Human Nutrition, Adelaide, Australia.

SO AMERICAN JOURNAL OF CLINICAL NUTRITION, **(1996 Dec)** 64 (6) 944-51.
Journal code: 0376027. ISSN: 0002-9165.

CY United States

DT (CLINICAL TRIAL)
Journal; Article; (JOURNAL ARTICLE)
(RANDOMIZED CONTROLLED TRIAL)

LA English

FS Abridged Index Medicus Journals; Priority Journals

EM 199701

ED Entered STN: 19970128
Last Updated on STN: 19970128
Entered Medline: 19970106

AB We compared the effects of a diet in which approximately 25% of the carbohydrate was replaced by high-**amylose starch** with those of a similar diet high in oat bran or low-**amylose starch** in 23 hypertriglyceridemic subjects who were overweight mostly because of abdominal adiposity. Each diet was consumed for 4 wk in random order and in a crossover fashion. Overall, the diets were high in carbohydrate (> 55% of energy) and low in fat (< 30% of energy); the amount of **resistant starch** in the foods containing high-**amylose starch** was 17 g in women and 25 g in men. The metabolic effects of specific **starches** on plasma lipids, fasting and **postprandial glucose** and **insulin** profiles, and bowel function were assessed at the end of each intervention. Plasma triacylglycerols (triglycerides) were significantly lower after the oat bran diet than after the other two diets ($P < 0.02$). No other effects on fasting plasma lipids, **glucose**, or **insulin** were noted. However, when the high-**amylose starch** comprised 33% of the carbohydrate content in a test meal, there was a significant but biologically small reduction in the overall **postprandial** plasma **insulin** concentration by 17% relative to the low-**amylose** diet ($P < 0.01$). Both the oat bran

and the high-**amylose** diet resulted in an increased frequency of bowel actions and lower fecal pH ($P < 0.02$) relative to the low-**amylose** diet. However, unlike the oat bran diet, the high-**amylose** diet increased short-chain fatty acid concentrations in fecal water by 32% ($P < 0.001$).

CT Check Tags: Female; Human; Male
Adult
***Amylose: PD, pharmacology**
*Avena sativa: ST, standards
Blood Glucose: AN, analysis
Cholesterol: BL, blood
***Colon: ME, metabolism**
*Colon: PH, physiology
Cross-Over Studies
Dietary Carbohydrates: TU, therapeutic use
Dietary Fiber: TU, therapeutic use
Feces: CH, chemistry
Hydrogen-Ion Concentration
Hypertriglyceridemia: DH, diet therapy
***Hypertriglyceridemia: ME, metabolism**
***Hypertriglyceridemia: PP, physiopathology**
Insulin: BL, blood
Lipids: BL, blood
Middle Age
***Starch: PD, pharmacology**

RN **11061-68-0 (Insulin)**; 57-88-5 (Cholesterol); **9005-25-8 (Starch)**; **9005-82-7 (Amylose)**

CN 0 (Blood **Glucose**); 0 (Dietary Carbohydrates); 0 (Lipids)

L70 ANSWER 11 OF 29 MEDLINE
AN **97089532** MEDLINE
DN **97089532** PubMed ID: **8935440**
TI **Resistant starch** as energy.
AU Behall K M; Howe J C
CS Diet and Human Performance Laboratory, Agricultural Research Service, US Department of Agriculture, Beltsville, Maryland 20705-2350, USA.
SO JOURNAL OF THE AMERICAN COLLEGE OF NUTRITION, **(1996 Jun)** 15 (3) 248-54.
Journal code: 8215879. ISSN: 0731-5724.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199612
ED Entered STN: 19970128
Last Updated on STN: 19970128
Entered Medline: 19961231
AB OBJECTIVE: This study was designed to compare the metabolizable energy of two **starch** sources, standard **cornstarch** and high **amylose cornstarch**. METHODS: Diets containing 70% **amylose** (AM) or 70% amylopectin (AP) **cornstarches** were fed to 10 control and 14 **hyperinsulinemic** men for 14 weeks. During the last 4 weeks of each period, subjects were fed a controlled diet containing 34% of total energy from fat, 15% from protein and 51% from carbohydrate (55% of carbohydrate provided AM or AP). Duplicate food and all urine and feces were collected during the second week of the controlled diets for energy, nitrogen, fiber and **starch** determinations. Metabolizable energy (ME) was calculated as [energy intake minus (fecal plus urinary energy excretion)]. RESULTS: Total fiber uncorrected for **resistant starch** was 35.2 g and 48.8 g in the AP and AM diets, respectively. The AM diet contained an average of 29.7 g **resistant starch** (16% of total **starch**) while the AP diet averaged 0.8 g (less than 0.01%). ME was not

significantly different between the AM and AP diets nor between the control and **hyperinsulinemic** subjects. Fecal energy and nitrogen was significantly higher after the AM compared to AP diet. Based on energy intake and fecal excretion from all subjects, the partial digestible energy value for the **resistant starch** averaged 11.7 kJ/g **resistant starch** which was 67.3% of the energy of standard **cornstarch**. Control and **hyperinsulinemic** subjects differed in their ability to digest **resistant starch**, averaging 81.8% and 53.2, respectively. The **hyperinsulinemic**, but not control, subjects had significantly higher breath hydrogen expirations (LS means, $p > 0.05$) in the fasting, 1-5 hours and 7 hour collections after consuming the AM when compared to the AP tolerance meal. CONCLUSIONS: The type of **starch** consumed in the diet did not statistically affect metabolizable energy. Based on ME and breath hydrogen expiration, **amylose** and the **resistant starch** from **amylose** appears to be utilized as an energy source. **Resistant starch** averaged 2.8 kcal/g for all 24 subjects but only 2.2 kcal/g in the **hyperinsulinemic** subjects.

CT Check Tags: Comparative Study; Human; Male
Adult
***Amylopectin: ME, metabolism**
***Amylose: ME, metabolism**
Breath Tests
Data Collection: MT, methods
Dietary Fiber: AN, analysis
Dietary Fiber: ME, metabolism
Energy Intake: PH, physiology
***Energy Metabolism: PH, physiology**
Fasting: ME, metabolism
Feces: CH, chemistry
Food, Formulated
***Hyperinsulinism: ME, metabolism**
Respiration: PH, physiology
Starch: AN, analysis
***Starch: ME, metabolism**
Time Factors

RN **9005-25-8 (Starch)**; **9005-82-7 (Amylose)**; 9037-22-3 (Amylopectin)

L70 ANSWER 12 OF 29 MEDLINE
AN **96374048** MEDLINE
DN **96374048** PubMed ID: **8780339**
TI Neither raw nor retrograded **resistant starch** lowers fasting serum cholesterol concentrations in healthy normolipidemic subjects.
AU Heijnen M L; van Amelsvoort J M; Deurenberg P; Beynen A C
CS Department of Human Nutrition, Wageningen Agricultural University, Netherlands. marie-louise. heijnen@etl.voed.wau.nl
SO AMERICAN JOURNAL OF CLINICAL NUTRITION, **(1996 Sep)** 64 (3) 312-8. Journal code: 0376027. ISSN: 0002-9165.
CY United States
DT (CLINICAL TRIAL)
Journal; Article; (JOURNAL ARTICLE)
(RANDOMIZED CONTROLLED TRIAL)
LA English
FS Abridged Index Medicus Journals; Priority Journals
EM 199610
ED Entered STN: 19961219
Last Updated on STN: 19961219
Entered Medline: 19961031
AB The question addressed was whether dietary **resistant starch** would lower serum cholesterol and triacylglycerol

concentrations in healthy normolipidemic subjects. In a randomized single-blind 3 x 3 Latin-square study with corrections for any carryover effects, 27 males and 30 females consumed supplements containing **glucose** or **resistant starch** (RS) from raw high-**amylose cornstarch** (RS2) or from retrograded high-**amylose cornstarch** (RS3). The RS2 and RS3 supplements provided 30 g RS/d. Each type of supplement was consumed in addition to the habitual diet for 3 wk. At the end of each 3-wk period, fasting blood samples and a 24-h food-consumption recall were obtained from each subject. The subjects collected 24-h urine samples for lithium determination, which was added to the supplements to check compliance. Mean lithium recovery was 97% and did not differ between supplements. The mean composition of the background diet was similar when the three supplements were taken. **Body weight** remained constant throughout the study. There were no significant differences in the fasting concentrations of serum total, high-density-lipoprotein (HDL), and low-density-lipoprotein (LDL) cholesterol; triacylglycerols, or 3 alpha-hydroxy bile acids after consumption of **glucose**, RS2, or RS3. Evidence is presented that the lack of effect of RS2 and RS3 on serum lipid concentrations cannot be explained by insufficient statistical power, a low dose, or a short duration of treatment. The subjects reported softer stools and more gastrointestinal symptoms after supplementation with RS than after **glucose**. Neither the RS2 nor the RS3 supplements lowered serum lipid concentrations in healthy, normolipidemic men and women.

CT Check Tags: Female; Human; Male; Support, Non-U.S. Gov't
Adolescent
Adult
Aged
Bile Acids and Salts: BL, blood
***Cholesterol: BL, blood**
Defecation
*Fasting
Gastrointestinal Diseases: CI, chemically induced
***Lipids: BL, blood**
Middle Age
Osmolar Concentration
Patient Compliance
Reference Values
Single-Blind Method
Starch: AD, administration & dosage
Starch: AE, adverse effects
***Starch: PD, pharmacology**

RN 57-88-5 (Cholesterol); **9005-25-8 (Starch)**
CN 0 (Bile Acids and Salts); 0 (Lipids)

L70 ANSWER 13 OF 29 MEDLINE
AN **96369790** MEDLINE
DN **96369790** PubMed ID: **8773730**
TI Effect of moderate levels of dietary fish oil on **insulin** secretion and sensitivity, and pancreas **insulin** content in normal rats.
AU Chicco A; D'Alessandro M E; Karabatas L; Gutman R; Lombardo Y B
CS Department of Biochemistry, University of Litoral, Santa Fe, Argentina.
SO ANNALS OF NUTRITION AND METABOLISM, (1996) 40 (2) 61-70.
Journal code: 8105511. ISSN: 0250-6807.
CY Switzerland
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199611
ED Entered STN: 19961219
Last Updated on STN: 19961219

Entered Medline: 19961107

AB The effect of omega-3 fatty acids derived from fish and marine mammals on subjects with normal **glucose** tolerance is still unclear. The aim of the present study was to test whether the hypolipidemia that follows the chronic administration of cod liver oil, rich in polyunsaturated fatty acids (omega-3), to normal rats is accompanied by changes in **glucose** metabolism, **insulin** secretion and sensitivity, and pancreatic **insulin** content. To achieve this goal, male Wistar rats were fed with a semisynthetic diet (w/w): 62.5% **cornstarch**, 7% cod liver oil plus 1% corn oil, and 17% protein (CD + CLO). Control rats were fed with the same semisynthetic diet with the only exception that the source of fat was 8% (w/w) corn oil (CD). Both diets were administered ad libitum for 1 month. At the end of the experimental period, the results obtained were as follows (mean +/- SEM): serum triacylglycerol (mM): CD + CLO 0.21 +/- 0.04 vs. CD 0.58 +/- 0.05 ($p < 0.05$); free fatty acids (microM): CD + CLO 257 +/- 20 vs. CD 288 +/- 22 (p = NS); total cholesterol (mM): CD + CLO 1.13 +/- 0.09 vs. CD 1.82 +/- 0.06 ($p < 0.05$); high-density lipoprotein cholesterol (mM): CD + CLO 0.58 +/- 0.08 vs. CD 1.07 +/- 0.04 ($p < 0.05$); plasma **glucose** (mM): CD + CLO 6.30 +/- 0.29 vs. CD 6.28 +/- 0.10 (p = NS); liver triacylglycerol (mumol/liver): CD + CLO 104.1 +/- 11.4 vs. CD 136.8 +/- 4.3 ($p < 0.05$); glycogen (mumol/g wet weight): CD + CLO 298.3 +/- 21.0 vs. CD 297.0 +/- 19.0 (p = NS); **glucose**-6-phosphate dehydrogenase (U/liver): CD + CLO 37.9 +/- 2.2 vs. CD 58.8 +/- 5.0 ($p < 0.05$); triacylglycerol secretion (nmol/min/100 g **body weight**): CD + CLO 101.0 +/- 2.0 vs. CD 166.0 +/- 9.7 ($p < 0.01$); removal of fat emulsion (K2% min-1): CD + CLO 15.0 x 10(-2) +/- 0.8 x 10(-2) vs. CD 8.2 x 10(-2) +/- 0.2 x 10(-2) ($p < 0.01$); intravenous **glucose** tolerance (kg 10(-2): CD + CLO 2.68 +/- 0.37 vs. CD 2.70 +/- 0.14 (p = NS); immunoreactive **insulin** (microU/ml/ min): with the area under the curve between 0 and 30 min CD + CLO 544 +/- 60 vs. CD 1,050 +/- 38 ($p < 0.05$), with the area under the curve between 0 and 60 min CD + CLO 1,188 +/- 150 vs. CD 2,160 +/- 137 ($p < 0.05$), and pancreas **insulin** content (microU/mg pancreas): CD + CLO 1.85 +/- 0.29 vs. CD 2.04 +/- 0.12 (p = NS). In conclusion, the present study shows that the strong hypolipidemic effect produced by the administration of low doses of fish oil to normal rats is accompanied by a significant reduction of plasma **insulin** levels without changes in **glucose** tolerance. Since no changes in pancreatic **insulin** content were observed, lower plasma **insulin** levels, both basal and after an intravenous **glucose** challenge, may be the result of an increased peripheral **insulin** sensitivity in normoglycemic animals.

CT Check Tags: Animal; Male; Support, Non-U.S. Gov't
Area Under Curve
Blood Glucose: AN, analysis
Cholesterol: BL, blood
Corn Oil: PD, pharmacology
Dose-Response Relationship, Drug
Eating: PH, physiology
Fatty Acids, Omega-3: PD, pharmacology
Fish Oils: AD, administration & dosage
***Fish Oils: PD, pharmacology**
Glucose: ME, metabolism
Glucose Tolerance Test
Glucosephosphate Dehydrogenase: AN, analysis
Glycogen: BL, blood
***Insulin: AN, analysis**
Insulin: BL, blood
***Insulin: SE, secretion**
***Insulin Resistance: PH, physiology**
Lipids: BL, blood
Lipoproteins, HDL Cholesterol: BL, blood
Liver: CH, chemistry

*Pancreas: CH, chemistry
Rats
Rats, Wistar
Triglycerides: BL, blood
Weight Gain: PH, physiology
RN **11061-68-0 (Insulin)**; **50-99-7 (Glucose)**; 57-88-5 (Cholesterol); 8001-30-7 (Corn Oil); 9005-79-2 (Glycogen)
CN 0 (Blood **Glucose**); 0 (Fatty Acids, Omega-3); 0 (Fish Oils); 0 (Lipids); 0 (Lipoproteins, HDL Cholesterol); 0 (Triglycerides); EC 1.1.1.49 (Glucosephosphate Dehydrogenase)

L70 ANSWER 14 OF 29 MEDLINE
AN **96338113** MEDLINE
DN **96338113** PubMed ID: **8759367**
TI Dietary (n-3) polyunsaturated fatty acids improve adipocyte **insulin** action and **glucose** metabolism in **insulin**-resistant rats: relation to membrane fatty acids.
AU Luo J; Rizkalla S W; Boillot J; Alamowitch C; Chaib H; Bruzzo F; Desplanque N; Dalix A M; Durand G; Slama G
CS Department of Diabetes, INSERM U341, University of Pierre et Marie Curie, Hotel-Dieu Hospital, Paris, France.
SO JOURNAL OF NUTRITION, (1996 Aug) 126 (8) 1951-8.
Journal code: 0404243. ISSN: 0022-3166.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199610
ED Entered STN: 19961015
Last Updated on STN: 19961015
Entered Medline: 19961001
AB To study the effects of dietary fish oil on **insulin**-stimulated **glucose** metabolism in adipocytes of **insulin**-resistant rats (rats fed 50% sucrose and 30% fat), eighteen 5-wk-old Sprague-Dawley rats were fed, for 6 wk, a diet containing 30% fat as either fish oil (FO) or a mixture of vegetable and animal oils [control oils (CO)]. A third reference group was fed a standard diet (62% corn **starch** and 13% fat). At the end of the 6-wk period, the two experimental groups had comparable plasma **glucose** concentrations that were higher than that found in the reference group. FO feeding corrected the **hyperinsulinemia** of the experimental rats ($P < 0.05$) to reach values in the reference group. Plasma triacylglycerol ($P < 0.01$) and cholesterol ($P < 0.001$) concentrations were also lower in rats fed FO than in those fed CO. The **body weights** of FO-fed rats were similar to that of CO-fed rats, but epididymal adipose tissue weight was lower ($P < 0.01$). Adipocytes of FO-fed rats, compared with those of CO-fed rats, had high **insulin**-stimulated **glucose** transport ($P < 0.05$), oxidation ($P < 0.001$) and incorporation into total lipids ($P < 0.05$). The incorporation of (n-3) polyunsaturated fatty acids in adipocyte membrane phospholipids was higher in FO-fed rats than in those fed CO ($P < 0.0001$). **Insulin** action was positively correlated with the fatty acid unsaturation index in membrane phospholipids. Thus dietary fish oil has beneficial effects on **insulinemia**, plasma lipids and **insulin**-stimulated **glucose** metabolism in **insulin**-resistant slightly diabetic rats.
CT Check Tags: Animal; Male
Adipocytes: DE, drug effects
***Adipocytes: ME, metabolism**
Adipocytes: UL, ultrastructure
Blood Glucose: ME, metabolism
Body Weight: PH, physiology
Cell Membrane: CH, chemistry

Cell Membrane: ME, metabolism
Cell Membrane: PH, physiology
Cholesterol: BL, blood
Diet: VE, veterinary
Dietary Carbohydrates: PD, pharmacology
Dietary Fats: PD, pharmacology
Eating: PH, physiology
***Fatty Acids: AN, analysis**
Fatty Acids: ME, metabolism
Fatty Acids, Omega-3: ME, metabolism
***Fatty Acids, Omega-3: PD, pharmacology**
***Glucose: ME, metabolism**
Insulin: BL, blood
***Insulin: PD, pharmacology**
***Insulin Resistance: PH, physiology**
Lipids: AN, analysis
Lipids: BL, blood
Lipids: ME, metabolism
Membrane Lipids: AN, analysis
***Membrane Lipids: ME, metabolism**
Random Allocation
Rats
Rats, Sprague-Dawley
Triglycerides: BL, blood
RN **11061-68-0 (Insulin); 50-99-7 (Glucose)**; 57-88-5 (Cholesterol)
CN 0 (Blood **Glucose**); 0 (Dietary Carbohydrates); 0 (Dietary Fats); 0 (Fatty Acids); 0 (Fatty Acids, Omega-3); 0 (Lipids); 0 (Membrane Lipids); 0 (Triglycerides)

L70 ANSWER 15 OF 29 MEDLINE
AN **96119279** MEDLINE
DN **96119279** PubMed ID: **8549543**
TI Dietary fibre, **resistant starch** and in vitro **starch** digestibility of cereal meals. Glycaemic and **insulinaemic** responses in **NIDDM** patients.
AU Lintas C; Cappelloni M; Bonmassar L; Clementi A; Del Toma E; Ceccarelli G
CS Department of Food Chemistry, National Institute of Nutrition, Rome, Italy.
SO EUROPEAN JOURNAL OF CLINICAL NUTRITION, (1995 Oct) 49 Suppl 3 S264-7. Journal code: 8804070. ISSN: 0954-3007.
CY ENGLAND: United Kingdom
DT (CLINICAL TRIAL)
Journal; Article; (JOURNAL ARTICLE)
(RANDOMIZED CONTROLLED TRIAL)
LA English
FS Priority Journals
EM 199602
ED Entered STN: 19960306
Last Updated on STN: 19960306
Entered Medline: 19960222
CT Check Tags: Comparative Study; Female; Human; Male; Support, Non-U.S. Gov't
Blood Glucose: AN, analysis
Cereals: CH, chemistry
***Cereals: ME, metabolism**
***Diabetes Mellitus, Non-Insulin-Dependent: ME, metabolism**
Dietary Carbohydrates: AN, analysis
***Dietary Carbohydrates: ME, metabolism**
Dietary Fiber: AN, analysis
***Dietary Fiber: ME, metabolism**
*Digestion: PH, physiology
Insulin: BL, blood

Middle Age
Starch: AN, analysis
***Starch: ME, metabolism**
RN **11061-68-0 (Insulin); 9005-25-8 (Starch)**
CN 0 (Blood **Glucose**); 0 (Dietary Carbohydrates)

L70 ANSWER 16 OF 29 MEDLINE
AN **96089788** MEDLINE
DN **96089788** PubMed ID: **8577229**
TI **Resistant starch** is more effective than cholestyramine as a lipid-lowering agent in the rat.
AU Younes H; Levrat M A; Demigne C; Remesy C
CS Laboratoire des Maladies Metaboliques, INRA de Clermont-Ferrand/Theix, St-Genes-Champanelle, France.
SO LIPIDS, **(1995 Sep)** 30 (9) 847-53.
Journal code: 0060450. ISSN: 0024-4201.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199603
ED Entered STN: 19960321
Last Updated on STN: 19960321
Entered Medline: 19960314
AB Amylase-**resistant starch** (RS) represents a substrate for the bacterial flora of the colon, and the question arises as whether RS shares with soluble fibers common mechanisms for their lipid-lowering effects. It is uncertain whether a cholesterol-lowering effect depends basically on an enhanced rate of steroid excretion or whether colonic fermentations also play a role in this effect. In the present study, the effect of RS (25% raw potato **starch**), of a steroid sequestrant (0.8% cholestyramine), or both were compared on bile acid excretion and lipid metabolism in rats fed semipurified diets. RS diets led to a marked rise in cecal size and the cecal pool of short-chain fatty acids (SCFA), as well as SCFA absorption; cholestyramine did not noticeably affect cecal fermentation. Whereas cholestyramine was particularly effective at enhancing bile acid excretion, RS was more effective in lowering plasma cholesterol (-32%) and triglycerides (-29%). The activity of 3-hydroxy-3-methylglutaryl-CoA reductase was increased fivefold by cholestyramine and twofold by RS. This induction in rats fed RS diets was concomittant to a depressed fatty acid synthase activity. In rats fed the RS diet, there was a lower concentration of cholesterol in all lipoprotein fractions, especially the (d = 1.040-1.080) fraction high-density lipoprotein (HDL1), while those fed cholestyramine had only a significant reduction of HDL1 cholesterol. In contrast to cholestyramine, RS also depressed the concentration of triglycerides in the triglyceride-rich lipoprotein fraction.(ABSTRACT TRUNCATED AT 250 WORDS)
CT Check Tags: Animal; Comparative Study; Male
Amylases: ME, metabolism
Anticholesteremic Agents: AD, administration & dosage
*Anticholesteremic Agents: PD, pharmacology
*Bile Acids and Salts: SE, secretion
Body Weight: DE, drug effects
Cecum: DE, drug effects
***Cholesterol: BL, blood**
Cholestyramine: AD, administration & dosage
*Cholestyramine: PD, pharmacology
Eating: DE, drug effects
Feces: CH, chemistry
Fermentation: DE, drug effects
Hydroxymethylglutaryl CoA Reductases: ME, metabolism
Intestine, Small: DE, drug effects
Lipoproteins, HDL: BL, blood

Liver: DE, drug effects
Organ Weight: DE, drug effects
Rats
Rats, Wistar
Starch: AD, administration & dosage
***Starch: PD, pharmacology**
***Triglycerides: BL, blood**
RN 11041-12-6 (Cholestyramine); 57-88-5 (Cholesterol); **9005-25-8 (Starch)**
CN 0 (Anticholesteremic Agents); 0 (Bile Acids and Salts); 0 (Lipoproteins, HDL); 0 (Triglycerides); EC 1.1.1.- (Hydroxymethylglutaryl CoA Reductases); EC 3.2.1.- (Amylases)

L70 ANSWER 17 OF 29 MEDLINE
AN **96080731** MEDLINE
DN **96080731** PubMed ID: **7588504**
TI **Resistant starch** has little effect on appetite, food intake and **insulin** secretion of healthy young men.
AU de Roos N; Heijnen M L; de Graaf C; Woestenenk G; Hobbel E
CS Department of Human Nutrition, Wageningen Agricultural University, The Netherlands.
SO EUROPEAN JOURNAL OF CLINICAL NUTRITION, **(1995 Jul)** 49 (7) 532-41.
Journal code: 8804070. ISSN: 0954-3007.
CY ENGLAND: United Kingdom
DT (CLINICAL TRIAL)
Journal; Article; (JOURNAL ARTICLE)
(RANDOMIZED CONTROLLED TRIAL)
LA English
FS Priority Journals
EM 199512
ED Entered STN: 19960124
Last Updated on STN: 19960219
Entered Medline: 19951208
AB OBJECTIVE: This study investigated whether **resistant starch** types II and III are more **satiating** than **glucose**. DESIGN AND SUBJECTS: During 4 weeks 24 healthy male volunteers consumed a daily supplement with either **glucose** or high-**amylose** corn **starch** (RS2) or extruded and retrograded high-**amylose** corn **starch** (RS3) in a cross-over, single-blind, randomised and balanced study design. Each type of supplement was consumed for a week. In the first week each subject consumed the **glucose** supplement. The RS2 and RS3 supplements provided for 30 g **resistant starch**/day. At the end of weeks 2, 3 and 4, subjects rated their appetite each whole hour on a visual analogue scale. Food intake was measured 1 day/week using the 24-h recall method. Subjects collected 24-h urine during the last 2 days of weeks 2, 3 and 4 to determine C-peptide excretion as a measure for the 24-h **insulin** secretion. RESULTS: Supplementation with RS2 caused significantly ($P < 0.05$) lower appetite scores than supplementation with RS3 and **glucose**, though subjects paradoxically felt less full while consuming RS2. The cyclic pattern of appetite during the day did not change with the supplements. Energy and macronutrient intake was similar in the three supplementation periods. When consuming RS3, subjects had a significantly ($P < 0.0012$) lower urinary C-peptide excretion than when consuming RS2 or **glucose**: 3.74 +/- 1.42 nmol/day for RS3, 4.39 +/- 1.52 nmol/day for RS2 and 4.71 +/- 1.73 nmol/day for **glucose**. The mechanism for this lower **insulin** secretion is yet unclear. CONCLUSION: Consumption of 30 g/day RS2 and RS3 had little influence on appetite and food intake, but RS3 reduced the **insulin** secretion.
CT Check Tags: Comparative Study; Human; Male; Support, Non-U.S. Gov't
Adult

*Appetite: DE, drug effects
Cross-Over Studies
***Dietary Carbohydrates: PD, pharmacology**
Eating: DE, drug effects
Energy Intake
Food Preferences: DE, drug effects
Glucose: PD, pharmacology
***Insulin: SE, secretion**
Single-Blind Method
Starch: AD, administration & dosage
***Starch: PD, pharmacology**
RN **11061-68-0 (Insulin); 50-99-7 (Glucose); 9005-25-8 (Starch)**
CN 0 (Dietary Carbohydrates)

L70 ANSWER 18 OF 29 MEDLINE
AN **94378975** MEDLINE
DN **94378975** PubMed ID: **8092089**
TI **Resistant starch**: the effect on **postprandial** glycemia, hormonal response, and **satiety**.
AU Raben A; Tagliabue A; Christensen N J; Madsen J; Holst J J; Astrup A
CS Research Department of Human Nutrition, Royal Veterinary and Agricultural University, Frederiksberg, Denmark.
SO AMERICAN JOURNAL OF CLINICAL NUTRITION, **(1994 Oct)** 60 (4) 544-51.
Journal code: 0376027. ISSN: 0002-9165.
CY United States
DT (CLINICAL TRIAL)
(CONTROLLED CLINICAL TRIAL)
Journal; Article; (JOURNAL ARTICLE)
(MULTICENTER STUDY)
LA English
FS Abridged Index Medicus Journals; Priority Journals
EM 199410
ED Entered STN: 19941031
Last Updated on STN: 19990129
Entered Medline: 19941020
AB The effect of **resistant starch** (RS) on **postprandial** plasma concentrations of **glucose**, lipids, and hormones, and on subjective **satiety** and palatability ratings was investigated in 10 healthy, normal-weight, young males. The test meals consisted of 50 g pregelatinized **starch** (0% RS) (S) or 50 g raw potato **starch** (54% RS) (R) together with 500 g artificially sweetened syrup. After the R meal **postprandial** plasma concentrations of **glucose**, lactate, **insulin**, gastric inhibitory polypeptide (GIP), glucagon-like peptide-1, and epinephrine were significantly lower compared with after the S meal. Moreover, subjective scores for **satiety** and fullness were significantly lower after the R meal than after the S meal. Differences in GIP, texture, and palatability may have been involved in these findings. In conclusion, the replacement of digestible **starch** with RS resulted in significant reductions in **postprandial** glycemia and **insulinemia**, and in the subjective sensations of **satiety**.
CT Check Tags: Human; Male; Support, Non-U.S. Gov't
Adult
***Blood Glucose: ME, metabolism**
Dietary Carbohydrates: ME, metabolism
***Dietary Carbohydrates: PD, pharmacology**
Epinephrine: BL, blood
*Food
Gastric Inhibitory Polypeptide: BL, blood
Glucagon: BL, blood

Glycerol: BL, blood
*Hormones: BL, blood
Insulin: BL, blood
Lactates: BL, blood
Lactic Acid
Norepinephrine: BL, blood
Peptide Fragments: BL, blood
Protein Precursors: BL, blood
***Satiation: PH, physiology**
Starch: ME, metabolism
***Starch: PD, pharmacology**
Triglycerides: BL, blood
RN **11061-68-0 (Insulin)**; 50-21-5 (Lactic Acid); 51-41-2 (Norepinephrine); 51-43-4 (Epinephrine); 56-81-5 (Glycerol); 59392-49-3 (Gastric Inhibitory Polypeptide); 89750-14-1 (glucagon-like peptide 1); **9005-25-8 (Starch)**; 9007-92-5 (Glucagon)
CN 0 (Blood **Glucose**); 0 (Dietary Carbohydrates); 0 (Hormones); 0 (Lactates); 0 (Peptide Fragments); 0 (Protein Precursors); 0 (Triglycerides)

L70 ANSWER 19 OF 29 MEDLINE
AN **94252284** MEDLINE
DN **94252284** PubMed ID: **8194500**
TI Bioavailability of **starch** in bread products. **Postprandial glucose** and **insulin** responses in healthy subjects and in vitro **resistant starch** content.
AU Liljeberg H; Bjorck I
CS Department of Applied Nutrition and Food Chemistry, University of Lund, Sweden.
SO EUROPEAN JOURNAL OF CLINICAL NUTRITION, **(1994 Mar)** 48 (3) 151-63.
Journal code: 8804070. ISSN: 0954-3007.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199406
ED Entered STN: 19940707
Last Updated on STN: 19940707
Entered Medline: 19940629
AB Attempts to reduce glycaemia to bread were evaluated in healthy subjects. The contents of in vitro **resistant starch** (RS) were also measured in the bread products. The potential of including intact barley kernels at different concentrations (80% and 40%) was tested in two products (SCB-80 and SCB-40). Three variants of barley bread made from wholemeal were also studied: ordinary (WMB), sourdough fermented (WMB-s) and one made from scalded flour (SWMB). A commercial pumpernickel bread (PB) based on sourdough fermented rye kernels was included for comparison and a white wheat bread (WWB) used as reference for calculation of glycaemic index. The glycaemic and **insulinaemic** indices for SCB-80 were 33 and 39, and for PB 69 and 61, respectively. The glycaemic index was lowered also in case of SCB-40 (66). No differences in indices were found between the WMB products or versus WWB. A high content of RS (8% **starch** basis) was found in the PB product, compared with the remaining bread products (0.8-1.7%).
CT Check Tags: Comparative Study; Female; Human; Male; Support, Non-U.S. Gov't
Adult
Biological Availability
***Blood Glucose: ME, metabolism**
*Bread: AN, analysis
Eating

Hordeum
Hydrogen-Ion Concentration
Hydrolysis
***Insulin: BL, blood**
Middle Age
***Starch: AN, analysis**
***Starch: PK, pharmacokinetics**
RN **11061-68-0 (Insulin); 9005-25-8 (Starch)**
CN 0 (Blood **Glucose**)

L70 ANSWER 20 OF 29 MEDLINE
AN **94226055** MEDLINE
DN **94226055** PubMed ID: **8172094**
TI **Glucose** and **insulin** responses to barley products: influence of food structure and **amylose**-amylopectin ratio.
CM Comment in: Am J Clin Nutr. 1995 Mar;61(3):614-5
AU Granfeldt Y; Liljeberg H; Drews A; Newman R; Bjorck I
CS Department of Applied Nutrition and Food Chemistry, University of Lund, Sweden.
SO AMERICAN JOURNAL OF CLINICAL NUTRITION, **(1994 May)** 59 (5) 1075-82.
Journal code: 0376027. ISSN: 0002-9165.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals; Priority Journals
EM 199406
ED Entered STN: 19940613
Last Updated on STN: 19970203
Entered Medline: 19940602
AB **Postprandial** glycemic and **insulinemic** responses and **satiety** with various barley products were evaluated in normal subjects. Also studied were the rate of in vitro **starch** digestion and the content of in vitro **resistant starch** (RS). Products tested were boiled intact (rice extender) and milled kernels (porridge) from four barley genotypes of Glacier with different **amylose**-amylopectin ratios (7-44% **amylose**). All barley products elicited lower metabolic responses and higher **satiety** scores when compared with white wheat bread. The lente behavior of the boiled flours was probably due to the viscous properties of the beta-glucans. However, the boiled flours produced higher **glucose** and **insulin** responses than did the corresponding boiled kernels. The impact of **amylose**: amylopectin on the metabolic responses was marginal. The high-**amylose** products released **starch** more slowly from a dialysis tubing during enzymic incubation of chewed samples compared with the corresponding products with less **amylose**. The RS content ranged from 0.4% in waxy to 5.6% in the high-**amylose** flour product (**starch** basis).
CT Check Tags: Female; Human; Male
Adult
*Amylopectin: AD, administration & dosage
Amylopectin: AN, analysis
***Amylose: AD, administration & dosage**
Amylose: AN, analysis
Blood Glucose: ME, metabolism
***Dietary Carbohydrates: AD, administration & dosage**
Dietary Carbohydrates: PD, pharmacology
Heat
*Hordeum
Hordeum: CH, chemistry
Hydrolysis
***Insulin: BL, blood**
Kinetics

Satiation
Starch: AD, administration & dosage
Starch: ME, metabolism
RN **11061-68-0 (Insulin); 9005-25-8 (Starch); 9005-82-7 (Amylose)**; 9037-22-3 (Amylopectin)
CN 0 (Blood **Glucose**); 0 (Dietary Carbohydrates)

L70 ANSWER 21 OF 29 MEDLINE
AN **92122007** MEDLINE
DN **92122007** PubMed ID: **1732475**
TI Replacement of digestible wheat **starch** by **resistant cornstarch** alters splanchnic metabolism in rats.
AU Morand C; Remesy C; Levrat M A; Demigne C
CS Laboratoire des Maladies Metaboliques, I.N.R.A. de Clermont-Ferrand--Theix, Saint-Genes-Champanelle, France.
SO JOURNAL OF NUTRITION, **(1992 Feb)** 122 (2) 345-54.
Journal code: 0404243. ISSN: 0022-3166.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199202
ED Entered STN: 19920315
Last Updated on STN: 19920315
Entered Medline: 19920227
AB Splanchnic metabolism was investigated in rats fed either a diet containing highly digestible wheat **starch** (DS diet) or amylase-**resistant cornstarch** (RS diet). In rats fed the latter diet, there was a considerable enlargement of the cecum and an increase in the production and absorption of volatile fatty acids (VFA), chiefly acetic and propionic acids. As a result, the major substrates absorbed from the digestive tract were **glucose** in rats fed the DS diet and both **glucose** and VFA in rats fed the RS diet. The liver removed about one-third of the absorbed **glucose** in rats fed the DS diet, whereas there was a slight release of **glucose** by the liver in rats fed the RS diet. Plasma **insulin** was higher in rats fed the DS diet, and there were smaller fluctuations of plasma **insulin** and liver glycogen between the fed and postabsorptive periods in rats adapted to the RS diet. In these animals, propionate was the major VFA taken up by the liver and approximately 50% of absorbed acetate was also removed by the liver. During the postabsorptive period, there was still a substantial contribution of VFA, especially propionate, to liver metabolism. A depressive effect of the RS diet on plasma triglycerides, cholesterol and free fatty acids was observed only during the postabsorptive period. Replacement of a large part of absorbed **glucose** by VFA apparently allows time for absorption of energy fuels to be extended and dampens the fluctuations of **glucose** metabolism during the light: dark cycle.
CT Check Tags: Animal; Comparative Study; Male
Alanine: ME, metabolism
Cecum: CH, chemistry
Cecum: ME, metabolism
Eating
Fatty Acids, Volatile: ME, metabolism
***Gastrointestinal System: ME, metabolism**
Glucose: ME, metabolism
Insulin: BL, blood
Intestinal Absorption
Lactates: ME, metabolism
Lipids: ME, metabolism
***Liver: ME, metabolism**
Liver Circulation: PH, physiology
Liver Glycogen: ME, metabolism

Portal System: PH, physiology
Rats
Rats, Inbred Strains
***Starch: AD, administration & dosage**
*Triticum
Urea: ME, metabolism
Weight Gain
RN **11061-68-0 (Insulin); 50-99-7 (Glucose);** 56-41-7 (Alanine); 57-13-6 (Urea); **9005-25-8 (Starch)**
CN 0 (Fatty Acids, Volatile); 0 (Lactates); 0 (Lipids); 0 (Liver Glycogen)

L70 ANSWER 22 OF 29 MEDLINE
AN **91124125** MEDLINE
DN **91124125** PubMed ID: **1992056**
TI Physiological effects of retrograded, alpha-amylase-**resistant cornstarch** in rats.
AU Gee J M; Faulks R M; Johnson I T
CS AFRC Institute of Food Research, Norwich Laboratory, United Kingdom.
SO JOURNAL OF NUTRITION, **(1991 Jan)** 121 (1) 44-9.
Journal code: 0404243. ISSN: 0022-3166.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199103
ED Entered STN: 19910405
Last Updated on STN: 19910405
Entered Medline: 19910313
AB Retrograded **amylose** was prepared by gelatinization of high **amylose cornstarch**, followed by storage at 1 degrees C for 48 h. The insoluble residue, which resisted hydrolysis with porcine amylase, was dried and fed to male Wistar rats for 14 d in powdered semisynthetic diet. Control rats received a similar diet containing sucrose in place of **resistant starch**. Fecal collections were performed throughout the feeding period. After 14 d the animals were killed. The small intestine and cecum were removed for morphological examination, measurement of small intestinal crypt cell production rate (CCPR) and analysis of luminal carbohydrate content. Blood samples were collected for analysis of cholesterol, glucagon, and enteroglucagon. In the **starch**-fed rats, fecal bulk and excretion of **starch** were higher than in the controls, but they declined markedly over the feeding period. Cecal size and contents were also greater in the **starch**-fed rats, and cecal pH was significantly lower. The CCPR was 66% higher in the ileum of the **starch**-fed rats (P less than 0.001), but there was no difference in the jejunum. There were no differences in serum cholesterol or enteroglucagon levels. We conclude that retrograded **amylose** is partially degraded in the alimentary tract of rats, but it contributes significantly to fecal bulk.
CT Check Tags: Animal; Male; Support, Non-U.S. Gov't
Amylose: AD, administration & dosage
Amylose: ME, metabolism
***Amylose: PD, pharmacology**
Carbohydrates: AN, analysis
Cecum: CH, chemistry
Cecum: CY, cytology
Cecum: ME, metabolism
Dietary Carbohydrates: ME, metabolism
***Dietary Carbohydrates: PD, pharmacology**
Feces: CH, chemistry
Ileum: CH, chemistry
Ileum: CY, cytology
Ileum: ME, metabolism

Jejunum: CH, chemistry
Jejunum: CY, cytology
Jejunum: ME, metabolism
Organ Weight
Rats
Rats, Inbred Strains
Starch: ME, metabolism
***Starch: PD, pharmacology**
***alpha-Amylase: ME, metabolism**
RN **9005-25-8 (Starch); 9005-82-7 (Amylose)**
CN 0 (Carbohydrates); 0 (Dietary Carbohydrates); EC 3.2.1.1 (alpha-Amylase)

L70 ANSWER 23 OF 29 MEDLINE
AN **90247341** MEDLINE
DN **90247341** PubMed ID: **2159696**
TI Effects of dietary propionate on carbohydrate and lipid metabolism in healthy volunteers.
AU Venter C S; Vorster H H; Cummings J H
CS Department of Dietetics, Potchefstroom University, South Africa.
SO AMERICAN JOURNAL OF GASTROENTEROLOGY, **(1990 May)** 85 (5) 549-53.
Journal code: 0421030. ISSN: 0002-9270.
CY United States
DT (CLINICAL TRIAL)
(CONTROLLED CLINICAL TRIAL)
Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199006
ED Entered STN: 19900706
Last Updated on STN: 19960129
Entered Medline: 19900614
AB Propionate produced in the colon from the fermentation of alpha-amylase-**resistant starch** and non-**starch** polysaccharides, is cholesterol lowering and gluconeogenic in animal models. In humans, little is known about the effect of propionate on metabolism. In a double-blind, paired-comparison, placebo-controlled study, the diet of 10 healthy female volunteers, aged 20-22 yr, was supplemented for a period of 7 wk with 7.5 g sodium propionate daily in capsule form, while the diet of the 10 control group members was supplemented with dibasic calcium phosphate in identical capsules as placebo. Propionate supplementation did not lower total serum cholesterol (TC), but increased HDLC (9.5%) (p less than 0.05) and triglyceride levels (16.7%, p less than 0.02) and decreased fasting serum **glucose** and maximum **insulin** increments during **glucose** tolerance tests (p less than 0.05). The results suggest that the improvement in **glucose** tolerance and **insulin** sensitivity and the known beneficial effect of dietary fiber on HDL metabolism may in part be mediated through effects of propionate on hepatic carbohydrate metabolism.
CT Check Tags: Female; Human; Support, Non-U.S. Gov't
Adult
***Blood Glucose: ME, metabolism**
Diet
Dietary Fiber: PD, pharmacology
Double-Blind Method
Hemostasis: DE, drug effects
Life Style
***Lipids: BL, blood**
Patient Compliance
***Propionates: PD, pharmacology**
Reference Values
CN 0 (Blood **Glucose**); 0 (Lipids); 0 (Propionates)

L70 ANSWER 24 OF 29 MEDLINE
AN **90144270** MEDLINE
DN **90144270** PubMed ID: **2405591**
TI Diet, atherosclerosis, and fish oil.
AU Connor W E; Connor S L
CS Department of Medicine, Oregon Health Sciences University, Portland.
NC HL25867 (NHLBI)
HL37940 (NHLBI)
RR334 (NCRR)
SO ADVANCES IN INTERNAL MEDICINE, (1990) 35 139-71. Ref: 100
Journal code: 0370427. ISSN: 0065-2822.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LA English
FS Priority Journals
EM 199003
ED Entered STN: 19900328
Last Updated on STN: 19900328
Entered Medline: 19900312
AB The principal goal of dietary prevention and treatment of atherosclerotic coronary heart disease is the achievement of physiological levels of the plasma total and LDL cholesterol, triglyceride, and VLDL. These goals have been well delineated by the National Cholesterol Education Program of the National Heart, Lung and Blood Institute and the American Heart Association. Dietary treatment is first accomplished by enhancing LDL receptor activity and at the same time depressing liver synthesis of cholesterol and triglyceride. Both dietary cholesterol and saturated fat decrease LDL receptor activity and inhibit the removal of LDL from the plasma by the liver. Saturated fat decreases LDL receptor activity, especially when cholesterol is concurrently present in the diet. The total amount of dietary fat is of importance also. The greater the flux of chylomicron remnants is into the liver, the greater is the influx of cholesterol ester. In addition, factors that affect VLDL and LDL synthesis could be important. These include excessive calories (**obesity**), which enhance triglyceride and VLDL and hence LDL synthesis. **Weight loss** and omega-3 fatty acids from fish oil depress synthesis of both VLDL and triglyceride in the liver. The optimal diet for the treatment of children and adults to prevent coronary disease has the following characteristics: cholesterol (100 mg/day), total fat (20% of calories, 6% saturated with the balance from omega-3 and omega-6 polyunsaturated and monounsaturated fat), carbohydrate (65% of calories, two thirds from **starch** including 11 to 15 gm of soluble fiber), and protein (15% of calories). This low-fat, high-carbohydrate diet can lower the plasma cholesterol 18% to 21%. This diet is also an antithrombotic diet, thrombosis being another major consideration in preventing coronary heart disease. Dietary therapy is the mainstay of the prevention and treatment of coronary heart disease through the control of plasma lipid and lipoprotein levels. The exact place of the omega-3 fatty acids from fish and fish oil remains to be defined. However, this much seems certain. Fish provides an excellent substitute for meat in the diet. Fish is lower in fat, especially saturated fat, and contains the omega-3 fatty acids. Fish oil may have promise as a therapeutic agent in certain hyperlipidemic states, especially the chylomicronemia of type V hyperlipidemia. Fish oil has logical and well-defined antithrombotic and anti-atherosclerotic activities since it depresses thromboxane A2 production and inhibits cellular proliferation responsible for the progression of atherosclerosis.(ABSTRACT TRUNCATED AT 400 WORDS)
CT Check Tags: Animal; Human; Support, U.S. Gov't, P.H.S.
***Cholesterol, Dietary**
Coronary Arteriosclerosis: ET, etiology

*Coronary Arteriosclerosis: PC, prevention & control
*Diet, Atherogenic
***Fatty Acids, Omega-3: TU, therapeutic use**
***Fish Oils**
Thrombosis: PC, prevention & control
CN 0 (Cholesterol, Dietary); 0 (Fatty Acids, Omega-3); 0 (Fish Oils)

L70 ANSWER 25 OF 29 MEDLINE
AN **89104834** MEDLINE
DN **89104834** PubMed ID: **2536273**
TI Dietary treatment of familial hypercholesterolemia.
AU Connor W E; Connor S L
CS Department of Medicine, Oregon Health Sciences University, Portland 97201.
NC DK29930 (NIDDK)
HL25867 (NHLBI)
HL37940 (NHLBI)
+
SO ARTERIOSCLEROSIS, (1989 Jan-Feb) 9 (1 Suppl) I91-105.
Journal code: 8401388. ISSN: 0276-5047.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 198902
ED Entered STN: 19900308
Last Updated on STN: 19980206
Entered Medline: 19890222
AB The principal goal of dietary treatment of familial hypercholesterolemia (FH) is the reduction of the plasma low density lipoprotein (LDL) cholesterol. This is best accomplished by enhancing the number of LDL receptors and, at the same time, depressing liver synthesis of cholesterol. Both cholesterol and saturated fat down-regulate the LDL receptor and inhibit the removal of LDL from the plasma by the liver. Saturated fat down-regulates the LDL receptor, especially when cholesterol is concurrently present in the diet. The total amount of dietary fat is also important. The greater the flux of chylomicron remnants into the liver, the greater is the influx of cholesterol ester. In addition, factors that affect LDL synthesis could be important. These include excessive calories (**obesity**) that enhance very low density lipoprotein (VLDL) and, hence, LDL synthesis, and **weight loss** and omega-3 fatty acids, which depress synthesis of VLDL and LDL. The optimal diet for treatment of children and adults has the following characteristics: cholesterol (100 mg/day), total fat (20% of kcalories, 6% saturated with the balance from omega-3 and omega-6 polyunsaturated and monounsaturated fat), carbohydrate (65% kcalories, two thirds from **starch**), and protein (15% kcalories). This low-fat high-carbohydrate diet can lower the plasma cholesterol 18% to 21%. It is also an antithrombotic diet, thrombosis being another major consideration in preventing coronary heart disease. Dietary therapy is the mainstay of treatment of FH to which various drug therapies can be added.
CT Check Tags: Human; Support, U.S. Gov't, P.H.S.
Cholesterol, Dietary: ME, metabolism
Coronary Disease: PC, prevention & control
Dietary Carbohydrates: PH, physiology
Dietary Fats: ME, metabolism
Dietary Fiber: PH, physiology
Dietary Proteins: PH, physiology
Energy Intake
Ethanol: AE, adverse effects
Fatty Acids, Unsaturated: ME, metabolism
***Hypercholesterolemia, Familial: DH, diet therapy**
Lipids: BL, blood
Lipoproteins: BL, blood

***Lipoproteins, LDL: ME, metabolism**
Phosphatidylcholines: PH, physiology
Platelet Aggregation
Thrombosis: PP, physiopathology
RN 64-17-5 (Ethanol)
CN 0 (Cholesterol, Dietary); 0 (Dietary Carbohydrates); 0 (Dietary Fats); 0 (Dietary Proteins); 0 (Fatty Acids, Unsaturated); 0 (Lipids); 0 (Lipoproteins); 0 (Lipoproteins, LDL); 0 (Phosphatidylcholines)

L70 ANSWER 26 OF 29 MEDLINE
AN **87319533** MEDLINE
DN **87319533** PubMed ID: **2442809**
TI Enzyme **resistant starch** fractions and dietary fibre.
AU Asp N G; Bjorck I; Holm J; Nyman M; Siljestrom M
SO SCANDINAVIAN JOURNAL OF GASTROENTEROLOGY. SUPPLEMENT, **(1987)** 129 29-32.
Journal code: 0437034. ISSN: 0085-5928.
CY Norway
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 198709
ED Entered STN: 19900305
Last Updated on STN: 19900305
Entered Medline: 19870925
AB **Starch** fractions that are more or less enzyme resistant may behave like dietary fibre, both physiologically and analytically. Ungelatinized granules from potatoes, high **amylose maize** and green bananas are poorly digested. **Starch** made resistant to amylase due to new covalent bindings, formed at heat treatment or present in **starch** derivatives used as food additives, may also be more or less undigestible. **"Resistant starch"** present in bread and corn flakes is probably retrograded **amylose**. It is undigestible in the small intestine, but readily degraded by the large bowel microflora. **Amylose**-lipid complexes seem to be completely absorbed in spite of their resistance to amylase degradation in vitro. Since undigestible **starch** fractions behave physiologically like non-**starch** polysaccharides, they should be included in the dietary fibre concept. **"Resistant starch"** is analysed as **glucose** based fibre with all current methods except one, which includes an initial DMSO solubilization step.
CT Check Tags: Animal; Human
Amylases: ME, metabolism
***Dietary Carbohydrates: ME, metabolism**
***Dietary Fiber: ME, metabolism**
Digestion
Food
Heating
Lipids: ME, metabolism
Nutritive Value
***Starch: ME, metabolism**
RN **9005-25-8 (Starch)**
CN 0 (Dietary Carbohydrates); 0 (Lipids); EC 3.2.1.- (Amylases)

L70 ANSWER 27 OF 29 MEDLINE
AN **83301503** MEDLINE
DN **83301503** PubMed ID: **6612098**
TI Effect of **amylomaize starch** on cholesterol and bile acid metabolisms in germfree (axenic) and conventional (holoxenic) rats.
AU Sacquet E; Leprince C; Riottot M
SO REPRODUCTION, NUTRITION, DEVELOPPEMENT, **(1983)** 23 (4) 783-92.
Journal code: 8005903. ISSN: 0181-1916.
CY France

DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 198310
ED Entered STN: 19900319
Last Updated on STN: 19970203
Entered Medline: 19831008
AB Germfree and conventional rats were given a semi-synthetic diet containing either normal **cornstarch** or an **amylomaize starch**. The experimental groups thus formed were compared to assess the effects of these two types of **starch** and to determine if digestive tract microflora was involved in these effects. The presence of **amylomaize starch** decreased body growth in germfree and conventional rats, increasing food intake in the former and decreasing it in the latter. In conventionals, **amylomaize starch** decreased the apparent digestibility of the ration only slightly, while in germfrees it diminished apparent digestibility considerably. The cecal weight of germfree animals was not modified by **amylomaize starch** but that of conventional rats was increased fourfold. In both types of rat, **amylomaize starch** largely decreased the plasma concentration of cholesterol, largely increased the total amount of bile acids in the small intestine but slightly modified the fecal elimination of cholesterol and bile acids. It augmented the cholesterol concentration in the liver of germfrees and decreased it in conventionals while, on the contrary, it diminished the total amount of bile acids in the hind gut in the former and augmented it in the latter. This **starch** did not change bile acid deconjugation in conventional rats but considerably decreased other bacterial transformations of cholesterol and bile acids. Digestive tract microflora was undoubtedly involved in the action of **amylomaize starch** on cecal weight, ration digestibility, food intake, hepatic cholesterol concentration, the amount of bile acid in the hind gut and obviously in the transformation of cholesterol and bile acids. It did not play a role in the other effects of this **starch**: the strong decrease in the concentration of plasma cholesterol was the direct effect of **amylomaize starch** on rat metabolism.
CT Check Tags: Animal; Comparative Study; Male
***Bile Acids and Salts: ME, metabolism**
Carbon Radioisotopes: DU, diagnostic use
***Cholesterol: ME, metabolism**
***Dietary Carbohydrates: PD, pharmacology**
Feces: AN, analysis
*Germ-Free Life: DE, drug effects
Kinetics
Liver: DE, drug effects
Liver: ME, metabolism
Rats
Rats, Inbred F344
***Starch: PD, pharmacology**
RN 57-88-5 (Cholesterol); **9005-25-8 (Starch)**
CN 0 (Bile Acids and Salts); 0 (Carbon Radioisotopes); 0 (Dietary Carbohydrates)

L70 ANSWER 28 OF 29 MEDLINE
AN **73247005** MEDLINE
DN **73247005** PubMed ID: **4353906**
TI Interrelationship between the kinds of dietary carbohydrate and fat in hyperlipoproteinemic patients. 2. Sucrose and **starch** with mixed saturated and polyunsaturated fats.
AU Birchwood B L; Little J A; Antar M A; Lucas C; Buckley G C; Csima A; Kallos A
SO ATHEROSCLEROSIS, (1970 Mar-Apr) 11 (2) 183-90.
Journal code: 0242543. ISSN: 0021-9150.

CY Netherlands
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 197311
ED Entered STN: 19900310
Last Updated on STN: 19900310
Entered Medline: 19731106
CT Check Tags: Female; Human; Male
Adult
***Blood Protein Disorders: ME, metabolism**
Child
Cholesterol: BL, blood
Diet, Atherogenic
***Dietary Carbohydrates: ME, metabolism**
***Dietary Fats: ME, metabolism**
Dietary Proteins: ME, metabolism
***Fats, Unsaturated: ME, metabolism**
Fatty Acids: ME, metabolism
Fatty Acids, Unsaturated: ME, metabolism
Hypercholesterolemia: ME, metabolism
***Hyperlipidemia: ME, metabolism**
***Lipoproteins: BL, blood**
Lipoproteins, LDL: BL, blood
Middle Age
Phospholipids: BL, blood
***Starch: ME, metabolism**
***Sucrose: ME, metabolism**
Triglycerides: BL, blood
RN 57-50-1 (Sucrose); 57-88-5 (Cholesterol); **9005-25-8 (Starch)**
CN 0 (Dietary Carbohydrates); 0 (Dietary Fats); 0 (Dietary Proteins); 0 (Fats, Unsaturated); 0 (Fatty Acids); 0 (Fatty Acids, Unsaturated); 0 (Lipoproteins); 0 (Lipoproteins, LDL); 0 (Phospholipids); 0 (Triglycerides)

L70 ANSWER 29 OF 29 MEDLINE
AN **73247004** MEDLINE
DN **73247004** PubMed ID: **4353905**
TI Interrelationship between the kinds of dietary carbohydrate and fat in hyperlipoproteinemic patients. 1. Sucrose and **starch** with polyunsaturated fat.
AU Little J A; Birchwood B L; Simmons D A; Antar M A; Kallos A; Buckley G C; Csima A
SO ATHEROSCLEROSIS, (1970 Mar-Apr) 11 (2) 173-81.
Journal code: 0242543. ISSN: 0021-9150.
CY Netherlands
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 197311
ED Entered STN: 19900310
Last Updated on STN: 19900310
Entered Medline: 19731106
CT Check Tags: Female; Human; Male
Adult
Aged
***Blood Protein Disorders: ME, metabolism**
Child
Cholesterol: BL, blood
Diet, Atherogenic
***Dietary Carbohydrates: ME, metabolism**
***Dietary Fats: ME, metabolism**
***Fats, Unsaturated: ME, metabolism**

Fatty Acids, Unsaturated: ME, metabolism
Hypercholesterolemia: ME, metabolism
***Hyperlipidemia: ME, metabolism**
Lipids: BL, blood
***Lipoproteins: BL, blood**
Lipoproteins, LDL: BL, blood
Middle Age
Phospholipids: BL, blood
***Starch: ME, metabolism**
***Sucrose: ME, metabolism**
Time Factors
Triglycerides: BL, blood

RN 57-50-1 (Sucrose); 57-88-5 (Cholesterol); **9005-25-8 (Starch)**
CN 0 (Dietary Carbohydrates); 0 (Dietary Fats); 0 (Fats, Unsaturated); 0 (Fatty Acids, Unsaturated); 0 (Lipids); 0 (Lipoproteins); 0 (Lipoproteins, LDL); 0 (Phospholipids); 0 (Triglycerides)

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(FILE 'HOME' ENTERED AT 07:02:52 ON 27 MAY 2003)
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FILE 'REGISTRY' ENTERED AT 07:03:02 ON 27 MAY 2003
L1 1 S STARCH/CN
L2 1 S AMYLOSE/CN

FILE 'MEDLINE' ENTERED AT 07:03:18 ON 27 MAY 2003
L3 7158 S L1
L4 19307 S ?STARCH?
L5 480 S L2
L6 1455 S AMYLOSE
L7 33 S AMYLOMAI?
L8 18 S AMYLOSE MAI?
L9 20262 S L3-L8
E STARCH/CT
E E3+ALL
L10 8137 S E6,E16,E19
L11 526 S E10-E12/BI
L12 20272 S L9-L11
E METABOLISM/CT
E E3+ALL
L13 8292 S L12 AND E3+NT
L14 7327 S L12 AND ME/CT
L15 9 S L12 AND LEPTIN
E LEPTIN/CT
E E3+ALL
L16 6 S L12 AND E11+NT
E SATIETY/CT
E E4+ALL
L17 11 S L12 AND E17+NT
E E16+ALL
L18 29 S L12 AND E16+NT
L19 52 S L12 AND (SATIET? OR SATIAT?)
E OBESITY/CT
E E3+ALL
L20 142 S L12 AND E64+NT
E E74+ALL
L21 14 S L12 AND E4+NT
E E3+ALL
L22 261 S L12 AND E3+NT
E BODY WEIGHT/CT
E E3+ALL

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L23          780 S L12 AND (E58 OR E72 OR E73 OR E74)
                 E E76+ALL
                 E E72+ALL
L24            1 S L12 AND E6
L25         1352 S L12 AND (?OBESIT? OR ?OBESE? OR BODY WEIGHT OR WEIGHT(L)(GAIN
                 E DIABETES/CT
                 E E4+ALL
L26            2 S L12 AND E13+NT
L27          140 S L12 AND (NIDDM OR ?DIABET?(L)(NONINSULIN? OR NON INSULIN? OR
L28          217 S L12 AND (POSTPRANDIAL? OR POST PRANDIAL?)
L29           74 S L12 AND BODY(S)MASS
L30         1806 S L15-L29
                 E NUTRIONAL/CT
                 E NUTRITIONAL/CT
                 E E4+ALL
L31         1362 S L12 AND E5+NT
L32         1565 S L12 AND C18./CT
L33         2849 S L30,L31,L32
L34          742 S L12 AND ?INSULIN?
L35         3126 S L12 AND GLUCOSE
                 E GLUCOSE/CT
                 E E3+ALL
L36         1519 S L12 AND (E6+NT OR E20+NT OR E22+NT OR E23+NT)
                 E INSULIN/CT
                 E E3+ALL
L37          529 S L12 AND (E24+NT OR E53+NT OR E54+NT OR E55+NT OR E56+NT OR E5
                 E INSULIN/CT
                 E E132+ALL
L38           59 S L12 AND E7+NT
L39         1362 S L12 AND E6+NT
                 E INSULIN/CT
L40            0 S L12 AND (E7+NT OR E47+NT)
                 E E76+ALL
L41            2 S L12 AND E12+NT
L42         5159 S L33-L41
                 E POLYUNSATURATED/CT
                 E E5+ALL
                 E E2+ALL
L43           46 S L42 AND E8+NT
                 SEL DN AN 13 14 24 25 41 42
L44            6 S E1-E18 AND L43
                 E LIPIDS/CT
L45         2378 S L12 AND E3+NT
L46         1044 S L45 AND L42
                 E DIETARY CARBOHYDRATES/CT
                 E E3+ALL
L47        14954 S E4
                 E DIETARY FAT/CT
                 E E5+ALL
L48        26651 S E11
L49        10544 S E21+NT
L50         1063 S L42 AND L47
L51          200 S L50 AND L48
L52           11 S L50 AND L49
L53          202 S L51,L52
L54            5 S L53 AND RESIST?(S)?STARCH?
L55           94 S L42 AND RESIST? ?STARCH?
L56           81 S L47 AND RESIST? ?STARCH?
L57           17 S L7,L8 AND L47
L58          176 S L7,L8,L54-L57
L59            6 S L58 AND L48,L49
L60           12 S FATTY ACIDS, UNSATURATED+NT/CT AND L53,L58
L61            0 S L60 AND RESIST? ?STARCH?
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L62          147 S L58 AND RESIST? ?STARCH?
L63          172 S L7,L8,L62
L64            8 S L63 NOT AB/FA
                 SEL DN AN 4
L65            1 S L64 AND E1-E3
L66            7 S L44,L65
L67          164 S L63 NOT L64-L66
L68          139 S L67 AND PY<=2001
                 SEL DN AN 2 3 11 13 15 20 45 67 70 71 72 78 85 86 101 103 104 1
L69           22 S L68 AND E4-E69
L70           29 S L66,L69 AND L3-L69

     FILE 'MEDLINE' ENTERED AT 08:22:42 ON 27 MAY 2003
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FILE 'HCAPLUS' ENTERED AT 14:45:59 ON 25 MAY 2003
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FILE LAST UPDATED: 23 May 2003 (20030523/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

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L49 ANSWER 1 OF 6 HCAPLUS COPYRIGHT 2003 ACS
AN **2002:740488** HCAPLUS
DN **137:369281**
TI Manipulation of colonic bacteria and volatile fatty acid production by dietary high **amylose** maize (**amylomaize**) **starch** granules
AU Wang, X.; **Brown, I. L.**; Khaled, D.; Mahoney, M. C.; Evans, A. J.; Conway, P. L.
CS CRC Food Industry Innovation, School of Medicine, The University of Queensland, Mater Adult Hospital, South Bank, Australia
SO Journal of Applied Microbiology (2002), 93(3), 390-397
CODEN: JAMIFK; ISSN: 1364-5072
PB Blackwell Science Ltd.
DT Journal
LA English
CC 18-4 (Animal Nutrition)
AB The authors aimed to study the effects of **amylomaize starch** and modified (carboxymethylated and acetylated) **amylomaize starches** on the compn. of colonic bacteria and the prodn. of volatile fatty acids, in mice. Balb/c mice were fed exptl. diets contg. various amt. of **amylomaize** and modified **amylomaize starches**. Colonic bacterial populations and short-chain fatty acids were monitored. Results showed that the increases in indigenous bifidobacteria were detected in mice fed all **starches** tested; however, the highest nos. were obsd. in the group fed with 40% unmodified **amylomaize starch**. The **starch** type influenced the populations of indigenous Lactobacillus, Bacteroides and coliforms. High Lactobacillus nos. were achieved in the colon of mice fed with high concn. of **amylomaize starch**. Acetylated **amylomaize starch** significantly reduced the population of coliforms. In addn., orally dosed **amylomaize** utilizing bifidobacteria reached their highest levels when fed together with **amylomaize** or carboxymethylated **amylomaize starch** and in both cases butyrate levels were markedly increased. These results indicate that different **amylomaize starches** could generate desirable variation in gut microflora and that particular **starches** may be used to

selectively modify gut function. **Amylomaize starch** appeared to enhance the desirable compn. of colonic bacteria in mice, and suggested it possessed the potential prebiotic properties. Therefore, **resistant starch** and its chem. derivs. may exert beneficial impacts to the human colon.

ST **amylomaize starch** diet colon bacteria volatile fatty acid

IT Bacteroides
Bifidobacterium
Coliform bacteria
Colonic bacteria
Lactobacillus
(manipulation of colonic bacteria and volatile fatty acid prodn. by dietary high **amylose** maize (**amylomaize**) **starch** granules)

IT **Fatty** acids, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(short-chain; manipulation of colonic bacteria and volatile fatty acid prodn. by dietary high **amylose** maize (**amylomaize**) **starch** granules)

IT **9005-25-8, Starch**, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(high-**amylose** maize; manipulation of colonic bacteria and volatile fatty acid prodn. by dietary high **amylose** maize (**amylomaize**) **starch** granules)

IT 64-19-7, Acetic acid, biological studies 79-09-4, Propanoic acid, biological studies 107-92-6, Butyric acid, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(manipulation of colonic bacteria and volatile fatty acid prodn. by dietary high **amylose** maize (**amylomaize**) **starch** granules)

RE.CNT 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD

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IT **9005-25-8, Starch,** biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(high-**amylose** maize; manipulation of colonic bacteria and volatile fatty acid prodn. by dietary high **amylose** maize (**amylomaize**) **starch** granules)
RN 9005-25-8 HCAPLUS
CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L49 ANSWER 2 OF 6 HCAPLUS COPYRIGHT 2003 ACS
AN **2001:762749** HCAPLUS
DN **135:288079**
TI **Starch sub-types** and lipid metabolism
IN **Brown, Ian Lewis; Storlien, Leonard Henry; Brown, Marc Andrew; Higgins, Janine; Tapsell, Linda Clare**
PA Penford Australia Limited, Australia
SO PCT Int. Appl., 50 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM A23L001-308
ICS A23L001-30
CC 18-4 (Animal Nutrition)
Section cross-reference(s): 17, 63
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001076394	A1	20011018	WO 2001-AU392	20010406
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	EP 1267642	A1	20030102	EP 2001-919008	20010406
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	BR 2001009960	A	20030211	BR 2001-9960	20010406
	US 2003045504	A1	20030306	US 2002-9023	20020412
	NO 2002004722	A	20021129	NO 2002-4722	20021002
PRAI	AU 2000-6733	A	20000406		
	WO 2001-AU392	W	20010406		

AB A method is provided for regulating carbohydrate and fat metab. in an individual, the method comprising replacing a proportion of the individual's daily carbohydrate intake with **resistant starch** and a proportion of the individual's satd. fat intake with unsatd. fat. Also provided are compns. comprising **resistant starch** and unsatd. fats and methods for making and using the same.
ST **starch** fat diet lipid metab
IT Intestine
(absorption; **starch sub-types** and lipid metab.)
IT Metabolism
(energy; **starch sub-types** and lipid metab.)
IT Diet
(low-calorie; **starch sub-types** and lipid metab.)

IT **Fats** and **Glyceridic** oils, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(metab. of; **starch sub-types** and lipid metab.)
IT Lipids, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(metab.; **starch sub-types** and lipid metab.)
IT **Fats** and **Glyceridic** oils, biological studies
RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
(monounsatd.; **starch sub-types** and lipid metab.)
IT Diabetes mellitus
(non-**insulin**-dependent; **starch sub-types** and lipid metab.)
IT Oxidation
(of fat; **starch sub-types** and lipid metab.)
IT **Fatty** acids, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); FFD (Food or feed use); BIOL (Biological study); PROC (Process); USES (Uses)
(polyunsatd., n-3, fats high in; **starch sub-types** and lipid metab.)
IT **Fatty** acids, biological studies
RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
(polyunsatd., omega-6, fats high in; **starch sub-types** and lipid metab.)
IT **Fats** and **Glyceridic** oils, biological studies
RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
(polyunsatd.; **starch sub-types** and lipid metab.)
IT Diet
(reducing; **starch sub-types** and lipid metab.)
IT Appetite
(satiety; **starch sub-types** and lipid metab.)
IT Antidiabetic agents
Antiobesity agents
Dietary energy
Drug delivery systems
Electrolytes
Flavoring materials
Food additives
Obesity
Postprandial period
(**starch sub-types** and lipid metab.)
IT Carbohydrates, biological studies
Fats and **Glyceridic** oils, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(**starch sub-types** and lipid metab.)
IT Mineral elements, biological studies
Trace element nutrients
Vitamins
RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
(**starch sub-types** and lipid metab.)
IT **Fats** and **Glyceridic** oils, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); FFD (Food or feed use); BIOL (Biological study); PROC (Process); USES (Uses)
(unsatd.; **starch sub-types** and lipid

metab.)
IT **50-99-7**, Dextrose, biological studies **9004-10-8**, **Insulin**, biological studies
RL: BOC (Biological occurrence); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
(blood; **starch sub-types** and lipid metab.)
IT **169494-85-3**, **Leptin**
RL: BOC (Biological occurrence); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
(**starch sub-types** and lipid metab.)
IT **9005-82-7**, **Amylose**
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(**starch sub-types** and lipid metab.)
IT **9005-25-8**, **Starch**, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); FFD (Food or feed use); BIOL (Biological study); PROC (Process); USES (Uses)
(**starch sub-types** and lipid metab.)
RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
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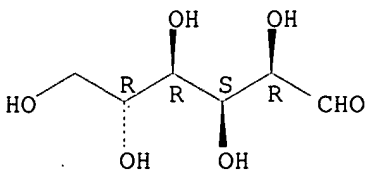
IT **50-99-7**, Dextrose, biological studies **9004-10-8**, **Insulin**, biological studies
RL: BOC (Biological occurrence); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
(blood; **starch sub-types** and lipid metab.)
RN 50-99-7 HCAPLUS
CN D-Glucose (8CI, 9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 9004-10-8 HCAPLUS
CN Insulin (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **169494-85-3**, **Leptin**
RL: BOC (Biological occurrence); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
(**starch sub-types** and lipid metab.)
RN 169494-85-3 HCAPLUS
CN Leptin (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **9005-82-7, Amylose**
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(**starch sub-types** and lipid metab.)
RN 9005-82-7 HCAPLUS
CN Amylose (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **9005-25-8, Starch**, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); FFD (Food or feed use); BIOL (Biological study); PROC (Process); USES (Uses)
(**starch sub-types** and lipid metab.)
RN 9005-25-8 HCAPLUS
CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L49 ANSWER 3 OF 6 HCAPLUS COPYRIGHT 2003 ACS
AN **2000:367387** HCAPLUS
DN **133:119509**
TI Diet composition and **insulin** action in animal models
AU **Storlien, Len H.**; **Higgins, J. A.**; Thomas, T. C.; **Brown, M. A.**; Wang, H. Q.; Huang, X. F.; Else, P. L.
CS Metabolic Research Centre, Faculty of Health & Behavioural Sciences, University of Wollongong, Wollongong, 2522, Australia
SO British Journal of Nutrition (2000), 83(Suppl. 1), S85-S90
CODEN: BJNUAV; ISSN: 0007-1145
PB CABI Publishing
DT Journal; General Review
LA English
CC 18-0 (Animal Nutrition)
AB A review with 46 refs. Crit. insights into the etiol. of **insulin resistance** have been gained by the use of animal models where **insulin** action has been modulated by strictly controlled dietary interventions not possible in human studies. Overall, the literature has moved from a focus on macronutrient proportions to understanding the unique effects of individual **subtypes** of fats, carbohydrates and proteins. Substantial evidence has now accumulated for a major role of dietary fat **subtypes** in **insulin** action. Intake of satd. fats is strongly linked to development of obesity and **insulin resistance**, while that of polyunsatd. fats (PUFAs) is not. This is consistent with observations that satd. fats are poorly oxidized for energy and thus readily stored, are poorly mobilized by lipolytic stimuli, impair membrane function, and increase the expression of genes assocd. with adipocyte profileration (making their own home). PUFAs have contrasting effects in each instance. It is therefore not surprising that increased PUFA intake in animal models is assocd. with improved **insulin** action and reduced adiposity. Less information is available for carbohydrate **subtypes**. Early work clearly demonstrated that diets high in simple sugars (in particular fructose) led to **insulin resistance**. However, again attention has rightly shifted to the very interesting issue of **subtypes** of complex carbohydrates. While no differences in **insulin** action have yet been shown, differences in substrate flux suggest there could be long-term beneficial effects on the fat balance of diets enhanced in slowly digested/**resistant starches**. A new area of major interest is in protein **subtypes**. Recent results have shown that rats fed high-fat diets where the protein component was from casein or soy were **insulin-resistant**, but when the protein source was from cod they were not.
ST review diet macronutrient **insulin resistance** obesity

IT Diet
Obesity
(diet compn. and **insulin** action in animal models)
IT **Fats** and **Glyceridic** oils, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(diet compn. and **insulin** action in animal models)
IT Nutrients
(macronutrients; diet compn. and **insulin** action in animal models)
IT **9004-10-8, Insulin**, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(diet compn. and **insulin** action in animal models)
RE.CNT 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS RECORD
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IT **9004-10-8, Insulin**, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(diet compn. and **insulin** action in animal models)
RN 9004-10-8 HCAPLUS
CN Insulin (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L49 ANSWER 4 OF 6 HCAPLUS COPYRIGHT 2003 ACS
AN **1998:702106** HCAPLUS
DN **130:80818**
TI Endurance in high-fat-fed rats: effects of carbohydrate content and fatty acid profile
AU Helge, Jorn W.; Ayre, Kerry; Chaunchaiyakul, Suwadee; Hulbert, Anthony J.; Kiens, Bente; **Storlien, Leonard H.**
CS Copenhagen Muscle Research Centre, August Krogh Institute, Copenhagen, DK-2100, Den.
SO Journal of Applied Physiology (1998), 85(4), 1342-1348
CODEN: JAPHEV; ISSN: 8750-7587
PB American Physiological Society
DT Journal
LA English
CC 18-5 (Animal Nutrition)
AB The exercise endurance performance and substrate storage and utilization was studied in 99 male Wistar fat- or carbohydrate-fed rats. The rats were fed over 4 wk a carbohydrate-rich diet (CHO) with 10% total energy content (E%) as fat, 20 E% as protein and 70 E% as carbohydrates or fat-rich diets (65 E% fat, 20 E% protein, 15 E% carbohydrate) contg. satd. (Sat) or monounsatd. fatty acids (Mono). Each dietary group was assigned to trained (6 days/wk, progressive to 60 min, 28 m/min at a 10% incline) or sedentary treatment. The rats were sacrificed before or after a treadmill endurance run to exhaustion. While the training increased endurance by 206%, the diet compn. did not affect the endurance in either trained or sedentary rats. The .beta.-hydroxyacyl-CoA dehydrogenase activity was increased in fat-fed but not carbohydrate-fed rats. The respiratory exchange ratio during the initial phase of exercise was lower after the Mono compared with the Sat diet and higher after the CHO than the Sat diet. Thus, adaptation to a high-fat diet contg. moderate amts. of carbohydrates did not enhance the endurance in either trained or untrained rats, but substrate utilization was modulated by both amt. and type of dietary fat during the initial stages of the exercise in trained and sedentary rats.
ST nutrition fat carbohydrate exercise performance muscle enzyme blood metabolite
IT Exercise
(endurance; high-fat diets and training effects on endurance exercise performance in rats)
IT Blood
Liver
Muscle
Nutrition, animal
(high-fat diets and training effects on endurance exercise performance in rats)
IT **Fatty** acids, biological studies
Glycerides, biological studies

RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(high-fat diets and training effects on endurance exercise performance in rats)

IT Carbohydrates, biological studies
Fats and **Glyceridic** oils, biological studies
RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
(high-fat diets and training effects on endurance exercise performance in rats)

IT **50-99-7**, D-**Glucose**, biological studies
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(blood; high-fat diets and training effects on endurance exercise performance in rats)

IT 50-21-5, Lactic acid, biological studies **50-99-7**, D-**Glucose**, biological studies **9005-79-2**, Glycogen, biological studies **9014-56-6**, Glycogen synthase 9027-96-7, Citrate synthase 9028-40-4, .beta.-Hydroxyacyl-CoA dehydrogenase
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(high-fat diets and training effects on endurance exercise performance in rats)

RE.CNT 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD

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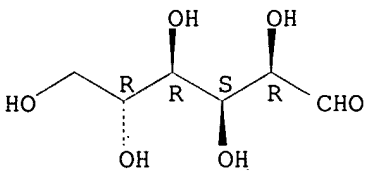
IT **50-99-7**, D-**Glucose**, biological studies
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(blood; high-fat diets and training effects on endurance exercise

performance in rats)
RN 50-99-7 HCAPLUS
CN D-Glucose (8CI, 9CI) (CA INDEX NAME)

Absolute stereochemistry.



IT **9005-79-2**, Glycogen, biological studies **9014-56-6**, Glycogen synthase
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(high-fat diets and training effects on endurance exercise performance in rats)
RN 9005-79-2 HCAPLUS
CN Glycogen (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 9014-56-6 HCAPLUS
CN Glucosyltransferase, uridine diphosphoglucose-glycogen (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L49 ANSWER 5 OF 6 HCAPLUS COPYRIGHT 2003 ACS
AN **1997:640531** HCAPLUS
DN **127:272803**
TI Alteration of microbial populations in the gastrointestinal tract
IN **Brown, Ian Lewis**; Conway, Patricia Lynne; Evans, Anthony John; Henriksson, Karl Anders Olof; McNaught, Kenneth John; Wang, Xin
PA University of New South Wales, Australia; Burns Philp & Co., Ltd.; Burns Philp Research & Development Pty. Ltd.; Commonwealth Scientific and Industrial Research Organisation; Arnott's Biscuits Ltd.; Gist-Brocades Australia Pty. Ltd.; Goodman Fielder Ingredients Ltd.; Brown, Ian Lewis; Conway, Patricia Lynne; et al.
SO PCT Int. Appl., 49 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM A61K031-175
ICS A61K035-78; A61K047-36; A61K035-74; A23L001-0522
CC 1-9 (Pharmacology)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9734591	A1	19970925	WO 1997-AU174	19970320
	W: AU, CA, JP, KR, NZ, SG, US				
	RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	CA 2249189	AA	19970925	CA 1997-2249189	19970320
	AU 9720180	A1	19971010	AU 1997-20180	19970320
	AU 722028	B2	20000720		
	EP 901371	A1	19990317	EP 1997-908076	19970320
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	NZ 331951	A	20000228	NZ 1997-331951	19970320
	JP 2001503016	T2	20010306	JP 1997-532980	19970320
	US 6348452	B1	20020219	US 1999-155116	19990129

PRAI AU 1996-8810 A 19960320
AU 1996-8811 A 19960320
AU 1996-8812 A 19960320
AU 1996-8814 A 19960320
WO 1997-AU174 W 19970320

AB A resident population of microorganism in a selected site of the gastrointestinal tract of an animal is enhanced by providing to the animal a selected modified or unmodified **resistant starch** or mixts. thereof in combination with one or more probiotic microorganisms such that upon ingestion the **starch** passes through the gastrointestinal tract substantially unutilized until it reaches the selected site where it is utilised by the resident and/or the probiotic microorganisms thereof causing an increase in no. and/or activity of the microorganisms. Modification of **starch** affect the degree of attachment of coliform bacteria and the attached bacteria are known to be more **resistant** to antibiotics. **Resistant starch** was orally dosed to mice in combination with Bifidobacterium and elevated levels of fecal butyrate.

ST gastrointestinal tract microbe enhancement **starch**

IT **Fatty** acids, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(short-chain, -producing microorganisms; **starch** derivs. for alteration of microbial populations in gastrointestinal tract)

IT Bifidobacterium
Clostridium beijerinckii
Crystallization
Eubacterium
Lactobacillus
Microorganism
(**starch** derivs. for alteration of microbial populations in gastrointestinal tract)

IT 107-92-6, Butyric acid, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(-producing microorganism; **starch** derivs. for alteration of microbial populations in gastrointestinal tract)

IT **9005-25-8, Starch**, biological studies **9045-28-7**
, **Starch** acetate **9049-76-7**, Hydroxypropyl **starch** **9057-06-1**, Carboxymethyl **starch** **39316-70-6, Starch** succinate **52906-93-1**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**starch** derivs. for alteration of microbial populations in gastrointestinal tract)

IT **9005-82-7, Amylose**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**starch** high in; **starch** derivs. for alteration of microbial populations in gastrointestinal tract)

IT **9005-25-8, Starch**, biological studies **9045-28-7**
, **Starch** acetate **9049-76-7**, Hydroxypropyl **starch** **9057-06-1**, Carboxymethyl **starch** **39316-70-6, Starch** succinate **52906-93-1**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**starch** derivs. for alteration of microbial populations in gastrointestinal tract)

RN 9005-25-8 HCAPLUS
CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 9045-28-7 HCAPLUS
CN Starch, acetate (9CI) (CA INDEX NAME)

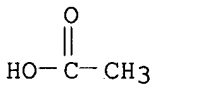
CM 1

CRN 9005-25-8
CMF Unspecified
CCI MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 64-19-7
CMF C2 H4 O2



RN 9049-76-7 HCAPLUS
CN Starch, 2-hydroxypropyl ether (9CI) (CA INDEX NAME)

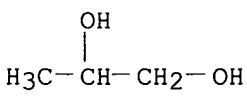
CM 1

CRN 9005-25-8
CMF Unspecified
CCI MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 57-55-6
CMF C3 H8 O2



RN 9057-06-1 HCAPLUS
CN Starch, carboxymethyl ether (9CI) (CA INDEX NAME)

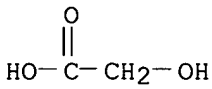
CM 1

CRN 9005-25-8
CMF Unspecified
CCI MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 79-14-1
CMF C2 H4 O3



RN 39316-70-6 HCAPLUS
CN Starch, hydrogen butanedioate (9CI) (CA INDEX NAME)

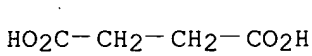
CM 1

CRN 9005-25-8
CMF Unspecified
CCI MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 110-15-6
CMF C4 H6 O4



RN 52906-93-1 HCAPLUS
CN Starch, hydrogen octenylbutanedioate (9CI) (CA INDEX NAME)

CM 1

CRN 9005-25-8
CMF Unspecified
CCI MAN

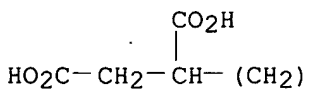
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 28805-58-5
CMF C12 H20 O4
CCI IDS

CM 3

CRN 2530-32-7
CMF C12 H22 O4



IT **9005-82-7, Amylose**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**starch** high in; **starch** derivs. for alteration of microbial populations in gastrointestinal tract)
RN 9005-82-7 HCAPLUS
CN Amylose (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L49 ANSWER 6 OF 6 HCAPLUS COPYRIGHT 2003 ACS
AN **1997:595379** HCAPLUS
DN **127:292473**
TI Fecal numbers of bifidobacteria are higher in pigs fed Bifidobacterium longum with a high **amylose cornstarch** than with a low **amylose cornstarch**
AU **Brown, Ian**; Warhurst, Michelle; Arcot, Jayashree; Playne, Martin; Illman, Richard J.; Topping, David L.
CS Co-operative Research Centre for Food Industry Innovation, CSIRO (Australia) Division of Human Nutrition, Adelaide, 5000, Australia
SO Journal of Nutrition (1997), 127(9), 1822-1827
CODEN: JONUAI; ISSN: 0022-3166
PB American Society for Nutritional Sciences
DT Journal
LA English
CC 18-4 (Animal Nutrition)
AB Twelve young male pigs consumed a purified diet contg. wheat bran as fiber source. **Starch** provided 50% of total daily energy either as a low **amylose** corn **starch** or as a high **amylose** (**amylomaize**) **starch**. The pigs were given a supplement of a freeze-dried probiotic organism Bifidobacterium longum CSCC 1941. A block crossover design was used so that at any one time 2 groups of 3 pigs consumed either the high or low **amylose** corn **starch** with the probiotic. Neither food intake nor body wt. gain was affected by the diets. Fecal output was higher when pigs were fed the high **amylose** corn **starch**, but moisture content was unaffected. The fecal concns. and excretion of total volatile fatty acids were higher when pigs were fed the high **amylose** corn **starch**. The fecal concns. of acetate were unaffected by the dietary **starch**, but those of propionate and butyrate were higher when the high **amylose** corn **starch** was consumed. Fecal excretion of all three acids was higher during the high **amylose** corn **starch** feeding. Bifidobacteria were detected in feces only when pigs were fed Bifidobacterium longum. Fecal bifidobacteria counts (expressed per g of wet feces) and their daily fecal excretion were higher when pigs were fed the high **amylose** corn **starch**. Feeding the probiotic did not alter the fecal **starch** or volatile fatty acid levels. None of the variables studied was affected by the order of fedding of **starch** or the probiotic. Thus, a high **amylose starch** acts as a prebiotic in promoting the fecal excretion of probiotic organisms.
ST swine feces bifidobacteria diet **amylose starch**
IT Bifidobacterium
Bifidobacterium longum
Diet
Feces
Feeding experiment
Swine
(fecal nos. of bifidobacteria are higher in pigs fed Bifidobacterium longum with high **amylose** corn **starch**)
IT **Fatty** acids, biological studies
Fatty acids, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative); PROC (Process)
(short-chain; fecal nos. of bifidobacteria are higher in pigs fed Bifidobacterium longum with high **amylose** corn **starch**)
IT **9005-25-8**, Corn **starch**, biological studies
9005-82-7, **Amylose**
RL: BPR (Biological process); BSU (Biological study, unclassified); FFD (Food or feed use); BIOL (Biological study); PROC (Process); USES (Uses)

(fecal nos. of bifidobacteria are higher in pigs fed Bifidobacterium longum with high **amylose** corn **starch**)

IT 64-19-7, Acetic acid, biological studies 79-09-4, Propionic acid, biological studies 107-92-6, Butyric acid, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative); PROC (Process)
(fecal nos. of bifidobacteria are higher in pigs fed Bifidobacterium longum with high **amylose** corn **starch**)

IT **9005-25-8**, Corn **starch**, biological studies
9005-82-7, **Amylose**
RL: BPR (Biological process); BSU (Biological study, unclassified); FFD (Food or feed use); BIOL (Biological study); PROC (Process); USES (Uses)
(fecal nos. of bifidobacteria are higher in pigs fed Bifidobacterium longum with high **amylose** corn **starch**)

RN 9005-25-8 HCAPLUS
CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9005-82-7 HCAPLUS
CN Amylose (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

=> d all hitstr tot l50

L50 ANSWER 1 OF 13 HCAPLUS COPYRIGHT 2003 ACS
AN **2002:18792** HCAPLUS
DN **136:231648**
TI **Resistant starch**: Plant breeding, applications development and commercial use
AU **Brown, Ian L.**; McNaught, Ken J.; Andrews, David; Morita, Tatsuya
CS Hi-Maize Starch Australia Limited, Lane Cove, 2066, Australia
SO Advanced Dietary Fibre Technology (2001), 401-412. Editor(s): McCleary, Barry V.; Prosky, Leon. Publisher: Blackwell Science Ltd., Oxford, UK. CODEN: 69CDP3
DT Conference; General Review
LA English
CC 18-0 (Animal Nutrition)
Section cross-reference(s): 17
AB A review. The digestive physiol. effects of dietary **resistant starch** (RS) and its uses as food additive in processed food products are discussed. The com. availability of RS food ingredients, clin. assessment of RS use, and innovative food engineering has provided consumers with foods of greater nutritional quality, while meeting the demands for food organoleptic acceptability. RS in its many forms may have a significant role in improving public health issues in the future.
ST review nutrition fiber **resistant starch** food additive digestive physiol
IT Dietary fiber
Food additives
Nutrition, animal
(dietary **resistant starch** as fiber, its physicochem. and nutritional properties and uses as food additive in processed food products)

IT **9005-25-8**, **Starch**, biological studies
RL: BSU (Biological study, unclassified); FFD (Food or feed use); BIOL (Biological study); USES (Uses)
(dietary **resistant starch** as fiber, its physicochem. and nutritional properties and uses as food additive in processed food products)

RE.CNT 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE
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IT **9005-25-8, Starch**, biological studies
RL: BSU (Biological study, unclassified); FFD (Food or feed use); BIOL (Biological study); USES (Uses)
(dietary **resistant starch** as fiber, its physicochem. and nutritional properties and uses as food additive in processed food products)

RN 9005-25-8 HCAPLUS
CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L50 ANSWER 2 OF 13 HCAPLUS COPYRIGHT 2003 ACS
AN **2000:493329** HCAPLUS
DN **133:73276**
TI Improved microbial preparations
IN Conway, Patricial Lynne; **Brown, Ian Lewis**; Wang, Xin; Lucas, Rachel Jane
PA Food Technology Innovations Pty Limited, Australia
SO PCT Int. Appl., 46 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM A23L001-0522
ICS A61K035-72; A61K035-74; A61K047-36; C12N011-10
CC 17-6 (Food and Feed Chemistry)
Section cross-reference(s): 16, 19, 63
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000041576	A1	20000720	WO 2000-AU21	20000114
	W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
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	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2002534108	T2	20021015	JP 2000-593196	20000114
	NO 2001003388	A	20010821	NO 2001-3388	20010709
PRAI	AU 1999-8168	A	19990114		
	WO 2000-AU21	W	20000114		

AB Microbial prepns. having increased growth/yield potential, or increased survival/recovery rate in a product, the prepn. comprising microbes grown or cultured in media based on or contg. **resistant starch** ; processes for producing the microbial prepns.; and products contg. the microbial prepns. are claimed.
ST microorganism food feed drug biocontrol bioremediation
IT Remediation
(bioremediation; improved microbial prepns. for edible, pharmaceutical and other prepns.)
IT Bakery products
(biscuits; improved microbial prepns. for edible, pharmaceutical and other prepns.)
IT Bakery products
(buns; improved microbial prepns. for edible, pharmaceutical and other prepns.)
IT Food
(coated products; improved microbial prepns. for edible, pharmaceutical and other prepns.)
IT Desserts
(dairy; improved microbial prepns. for edible, pharmaceutical and other prepns.)
IT Food
(extruded products; improved microbial prepns. for edible, pharmaceutical and other prepns.)
IT Beverages
(fruit drinks; improved microbial prepns. for edible, pharmaceutical and other prepns.)

IT Temperature effects, biological
(heat; improved microbial prepns. for edible, pharmaceutical and other prepns.)
IT Food
(ices; improved microbial prepns. for edible, pharmaceutical and other prepns.)
IT Alcaligenes
Antibiotics
Bacilli
Bacteria (Eubacteria)
Bacteroides
Beverages
Bifidobacterium
Bread
Breakfast cereal
Clostridium
Clostridium butyricum
Confectionery
Crosslinking
Dairy products
Drug delivery systems
Enterococcus
Esterification
Etherification
Feed additives
Food additives
Fungi
Fusobacterium
Health food
Ice cream
Lactic acid bacteria
Lactobacillus
Lactococcus
Leuconostoc
Microorganism
Milk preparations
Orange juice
Oxidation
Peptostreptococcus
Propionibacterium
Pseudomonas
Saccharomyces
Staphylococcus
Streptococcus
Yeast
(improved microbial prepns. for edible, pharmaceutical and other prepns.)
IT Food
(muesli bars; improved microbial prepns. for edible, pharmaceutical and other prepns.)
IT Feed
(pelleted; improved microbial prepns. for edible, pharmaceutical and other prepns.)
IT Intestinal bacteria
(probiotic; improved microbial prepns. for edible, pharmaceutical and other prepns.)
IT Food
(snack; improved microbial prepns. for edible, pharmaceutical and other prepns.)
IT Banana (Musa)
Barley
Legume (Fabaceae)
Wheat

(**starch**; improved microbial prepns. for edible, pharmaceutical and other prepns.)
IT Food
(starter cultures for; improved microbial prepns. for edible, pharmaceutical and other prepns.)
IT Drug delivery systems
(tablets; improved microbial prepns. for edible, pharmaceutical and other prepns.)
IT Milk preparations
(yogurt, beverages; improved microbial prepns. for edible, pharmaceutical and other prepns.)
IT Milk preparations
(yogurt; improved microbial prepns. for edible, pharmaceutical and other prepns.)
IT **9005-25-8D**, **Starch**, digestion-**resistant**, biological studies **9005-82-7**, **Amylose**
RL: FFD (Food or feed use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(improved microbial prepns. for edible, pharmaceutical and other prepns.)
IT **9004-53-9P**, Dextrin
RL: IMF (Industrial manufacture); PREP (Preparation)
(improved microbial prepns. for edible, pharmaceutical and other prepns.)
RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
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(3) The University Of New South Wales; WO 9608261 1996 HCAPLUS
(4) The University Of New South Wales; WO 9734591 1997 HCAPLUS
(5) The University Of New South Wales; WO 9734592 1997 HCAPLUS
(6) The University Of New South Wales; WO 9734615 1997 HCAPLUS
IT **9005-25-8D**, **Starch**, digestion-**resistant**, biological studies **9005-82-7**, **Amylose**
RL: FFD (Food or feed use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(improved microbial prepns. for edible, pharmaceutical and other prepns.)
RN 9005-25-8 HCAPLUS
CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 9005-82-7 HCAPLUS
CN Amylose (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **9004-53-9P**, Dextrin
RL: IMF (Industrial manufacture); PREP (Preparation)
(improved microbial prepns. for edible, pharmaceutical and other prepns.)
RN 9004-53-9 HCAPLUS
CN Dextrin (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L50 ANSWER 3 OF 13 HCAPLUS COPYRIGHT 2003 ACS
AN **2000:251611** HCAPLUS
DN **133:88738**
TI **Starches**, **resistant starches**, the gut microflora and human health
AU Bird, Anthony R.; **Brown**, **Ian L.**; Topping, David L.
CS CSIRO Health Sciences and Nutrition, Adelaide, 5000, Australia
SO Current Issues in Intestinal Microbiology (2000), 1(1), 25-37

CODEN: CIIMFP; ISSN: 1466-531X
PB Horizon Scientific Press
DT Journal
LA English
CC 18-4 (Animal Nutrition)
AB **Starches** are important as energy sources for humans and also for their interactions with the gut microflora throughout the digestive tact. Largely, those interactions promote human health. In the mouth, less gelatinized **starches** may lower risk of cariogenesis. In the large bowel, **starches** which have escaped small intestinal digestion (**resistant starch**), together with proteins, other undigested carbohydrates and endogenous secretions are fermented by the resident microflora. The resulting short chain fatty acids contribute substantially to the normal physiol. functions of the viscera. Specific types of **resistant starch** (e.g. the chem. modified **starches** used in the food industry) may be used to manipulate the gut bacteria and their products (including short chain fatty acids) so as to optimize health. In the upper gut, these **starches** may assist in the transport of probiotic organisms thus promoting the immune response and suppressing potential pathogens. However, it appears unlikely that current probiotic organisms can be used to modulate large bowel short chain fatty acids in adults although **resistant starch** and other prebiotics can do so. Suggestions that **starch** may exacerbate certain conditions (such as ulcerative colitis) through stimulating the growth of certain pathogenic organisms appear to be unfounded. Short chain fatty acids may modulate tissue levels and effects of growth factors in the gut and so modify gut development and risk of serious disease, including colo-rectal cancer. However, information on the relationship between **starches** and the microflora is relatively sparse and substantial opportunities exist both for basic research and food product development.
ST **starch** gastrointestinal tract bacteria health
IT Digestive tract
Health
Intestinal bacteria
(**starches, resistant starches,** the gut microflora and human health)
IT **9005-25-8, Starch,** biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(**starches, resistant starches,** the gut microflora and human health)
RE.CNT 139 THERE ARE 139 CITED REFERENCES AVAILABLE FOR THIS RECORD
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IT **9005-25-8, Starch**, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(**starches, resistant starches**, the gut

microflora and human health)
RN 9005-25-8 HCAPLUS
CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L50 ANSWER 4 OF 13 HCAPLUS COPYRIGHT 2003 ACS
AN **2000:80425** HCAPLUS
DN **133:30126**
TI The protective effects of high **amylose** maize (**amylomaize**) **starch** granules on the survival of Bifidobacterium spp. in the mouse intestinal tract
AU Wang, X.; **Brown, I. L.**; Evans, A. J.; Conway, P. L.
CS Melbourne Laboratory, Food Science Australia, CRC for Food Industry Innovation, Highett, VIC, Australia
SO Journal of Applied Microbiology (1999), 87(5), 631-639
CODEN: JAMIFK; ISSN: 1364-5072
PB Blackwell Science Ltd.
DT Journal
LA English
CC 18-4 (Animal Nutrition)
AB The use of high-**amylose** corn **starch** granules as a delivery system for probiotic bacteria was investigated using Bifidobacterium strains Lafti 8B and Lafti 13B isolated from feces of a healthy human. The Bifidobacterium cells were able to adhere to the **starch** granules and were able to hydrolyze the **starch** during growth in vitro. The in vitro studies were carried out initially by studying the survival of Bifidobacterium in media with pH 2.3, 3.5, and 6.5 and/or 0.03 and 0.05% bile acids. The strains were grown in the absence or presence of the **starch** granules, then mixed with the **starch** granules, and exposed to the acidic buffers or bile acid solns. The growth in the presence of **starch** granules led to enhanced survival of the 2 strains in vitro. The in vivo survival was monitored by measuring the fecal level of Bifidobacterium Lafti 8B after oral administration of the strain to mice. A 6-fold better recovery of Lafti 8B from feces after oral dosage was noted for cells previously grown in **amylose**-contg. medium compared with controls. Thus, high-**amylose** corn **starch** granules contribute to enhanced survival of Bifidobacterium sp. Lafti 8B and Lafti 13B.
ST corn **starch** protection Bifidobacterium intestine bacteria
IT Bifidobacterium
Intestinal bacteria
Nutrition, animal
(corn high-**amylose starch** granules improve survival of Bifidobacterium in mouse intestinal tract)
IT **9005-25-8**, **Starch**, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); FFD (Food or feed use); BIOL (Biological study); PROC (Process); USES (Uses)
(corn high-**amylose starch** granules improve survival of Bifidobacterium in mouse intestinal tract)
RE.CNT 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD
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IT **9005-25-8, Starch**, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); FFD (Food or feed use); BIOL (Biological study); PROC (Process); USES (Uses)
(corn high-**amylose starch** granules improve survival of Bifidobacterium in mouse intestinal tract)
RN 9005-25-8 HCAPLUS
CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L50 ANSWER 5 OF 13 HCAPLUS COPYRIGHT 2003 ACS
AN **1999:751166** HCAPLUS
DN **132:62145**
TI Aging changes tissue-specific **glucose** metabolism in rats
AU **Higgins, Janine**; Proctor, Deborah; Denyer, Gareth
CS Center for Human Nutrition, University of Colorado Health Sciences Center, Denver, CO, 80262, USA
SO Metabolism, Clinical and Experimental (1999), 48(11), 1445-1449
CODEN: METAAJ; ISSN: 0026-0495
PB W. B. Saunders Co.
DT Journal
LA English
CC 13-3 (Mammalian Biochemistry)
Section cross-reference(s): 14
AB This study defines the tissue-specific changes in **glucose** metabolic flux that occur over time prior to the onset of whole-body **insulin resistance** in rats. Rats at 6 wk of age were maintained on a high-carbohydrate diet for either 12 or 26 wk, at which time euglycemic clamps were performed at basal and midphysiol. plasma **insulin** concns. Following death, **insulin**-sensitive tissues were excised and frozen until assayed for the rate of **glucose** uptake, glycogenesis, and lipogenesis. **Glucose** metabolic flux, particularly through glycogenesis, was reduced between 18 and 32 wk of age in all tissues except the adipose tissues. For example, the rate of glycogenesis in liver at 18 wk (117 .+-. 10 nmol **glucose** incorporated/min/g) was more than double that obsd. at 32 wk (54 .+-. 8 nmol **glucose** incorporated/min/g, P < .01). Despite this, animals in the 32-wk group displayed no impairment in whole-body **glucose** disposal, due to compensatory **glucose** uptake in white adipose tissue (WAT) and increased **glucose** flux

through lipogenesis in brown adipose tissue (BAT). At 32 wk, the rate of **glucose** uptake in WAT (85.0 .+-. 5.6 nmol 2-deoxy-D-**glucose** phosphate accumulated/min/g) was approx. double that at 18 wk (46.6 .+-. 5.6 nmol 2-deoxy-D-**glucose** phosphate accumulated/min/g) was approx. double that at 18 wk (46.6 .+-. 5.6 nmol 2-deoxy-D-**glucose** phosphate accumulated/min/g, P < .01). These changes in **insulin** responsiveness in adipose tissue of older animals may underlie the increased adiposity that is currently thought to be the causative factor in the development of age-related **insulin resistance**.

ST aging **glucose** metab tissue; glycogen formation **glucose** metab tissue aging; lipogenesis **glucose** metab tissue aging; **insulin resistance glucose** metab tissue aging

IT Aging, animal
Liver
Muscle
(aging changes tissue-specific **glucose** metab. in rats)

IT Lipids, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative); PROC (Process)
(aging changes tissue-specific **glucose** metab. in rats)

IT Adipose tissue
(brown; aging changes tissue-specific **glucose** metab. in rats)

IT Biological transport
(uptake; aging changes tissue-specific **glucose** metab. in rats)

IT Adipose tissue
(white; aging changes tissue-specific **glucose** metab. in rats)

IT **50-99-7**, D-**Glucose**, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(aging changes tissue-specific **glucose** metab. in rats)

IT **9005-79-2**, Glycogen, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative); PROC (Process)
(aging changes tissue-specific **glucose** metab. in rats)

IT **9004-10-8**, **Insulin**, biological studies
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(**resistance**; aging changes tissue-specific **glucose** metab. in rats)

RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD

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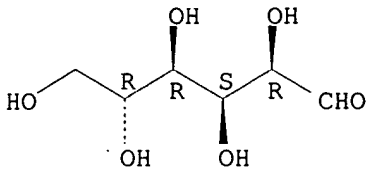
IT **50-99-7**, D-**Glucose**, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(aging changes tissue-specific **glucose** metab. in rats)

RN 50-99-7 HCAPLUS
CN D-Glucose (8CI, 9CI) (CA INDEX NAME)

Absolute stereochemistry.



IT **9005-79-2**, Glycogen, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative); PROC (Process)
(aging changes tissue-specific **glucose** metab. in rats)
RN 9005-79-2 HCAPLUS
CN Glycogen (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **9004-10-8**, **Insulin**, biological studies
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(**resistance**; aging changes tissue-specific **glucose** metab. in rats)
RN 9004-10-8 HCAPLUS
CN Insulin (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L50 ANSWER 6 OF 13 HCAPLUS COPYRIGHT 2003 ACS
AN **1999:721567** HCAPLUS
DN **132:61425**
TI In vitro utilization of amylopectin and high-**amylose** maize (**amylomaize**) **starch** granules by human colonic bacteria
AU Wang, Xin; Conway, Patricia Lynne; **Brown, Ian Lewis**; Evans, Anthony John
CS CRC for Food Industry Innovation at Food Science Australia, Highett, 3190, Australia
SO Applied and Environmental Microbiology (1999), 65(11), 4848-4854
CODEN: AEMIDF; ISSN: 0099-2240
PB American Society for Microbiology
DT Journal
LA English
CC 10-2 (Microbial, Algal, and Fungal Biochemistry)
AB It has been well established that a certain amt. of ingested **starch** can escape digestion in the human small intestine and consequently enters the large intestine, where it may serve as a carbon source for bacterial fermn. Thirty-eight types of human colonic bacteria were screened for their capacity to utilize sol. **starch**, gelatinized amylopectin maize **starch**, and high-**amylose** maize **starch** granules by measuring the clear zones on **starch** agar plates. The six cultures which produced clear zones on amylopectin maize **starch**-contg. plates were selected for further studies for utilization of amylopectin maize **starch** and high-**amylose** maize **starch** granules A (**amylose** ; Sigma) and B (Culture Pro 958N). SDS-PAGE was used to detect bacterial **starch**-degrading enzymes. It was demonstrated that Bifidobacterium spp., Bacteroides spp., Fusobacterium spp., and strains of Eubacterium, Clostridium, Streptococcus, and Propionibacterium could hydrolyze the gelatinized amylopectin maize **starch**, while only

Bifidobacterium spp. and Clostridium butyricum could efficiently utilize high-**amylose** maize **starch** granules. In fact, C. butyricum and Bifidobacterium spp. had higher specific growth rates in the autoclaved medium contg. high-**amylose** maize **starch** granules and hydrolyzed 80 and 40% of the **amylose**, resp. **Starch**-degrading enzymes were cell bound on Bifidobacterium and Bacteroides cells and were extracellular for C. butyricum. Active staining for **starch**-degrading enzymes on SDS-PAGE gels showed that the Bifidobacterium cells produced several **starch**-degrading enzymes with high relative mol. (Mr) wts. (> 160,000), medium-sized relative mol. wts. (> 66,000), and low relative mol. wts. (< 66,000). It was concluded that Bifidobacterium spp. and C. butyricum degraded and utilized granules of **amylomaize starch**.

ST intestinal bacteria amylopectin **starch** metab

IT Bacteroides
Bifidobacterium
Clostridium butyricum
Eubacterium
Fusobacterium
Intestinal bacteria
Propionibacterium
Streptococcus
(in vitro utilization of amylopectin and high-**amylose** maize **starch** granules by human colonic bacteria)

IT Enzymes, biological studies
RL: BAC (Biological activity or effector, except adverse); BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(**starch**-degrading; in vitro utilization of amylopectin and high-**amylose** maize **starch** granules by human colonic bacteria)

IT **9005-25-8**, **Starch**, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(high-amylase maize; in vitro utilization of amylopectin and high-**amylose** maize **starch** granules by human colonic bacteria)

IT **9005-82-7**, **Amylose**
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(in vitro utilization of amylopectin and high-**amylose** maize **starch** granules by human colonic bacteria)

IT **9037-22-3**, Amylopectin
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(in vitro utilization of amylopectin and high-**amylose** maize **starch** granules by human colonic bacteria)

RE.CNT 42 THERE ARE 42 CITED REFERENCES AVAILABLE FOR THIS RECORD

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IT **9005-25-8, Starch**, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(high-amylase maize; in vitro utilization of amylopectin and high-**amylose** maize **starch** granules by human colonic bacteria)
RN 9005-25-8 HCAPLUS
CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **9005-82-7, Amylose**
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(in vitro utilization of amylopectin and high-**amylose** maize **starch** granules by human colonic bacteria)
RN 9005-82-7 HCAPLUS
CN Amylose (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **9037-22-3**, Amylopectin
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(in vitro utilization of amylopectin and high-**amylose** maize **starch** granules by human colonic bacteria)
RN 9037-22-3 HCAPLUS
CN Amylopectin (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L50 ANSWER 7 OF 13 HCAPLUS COPYRIGHT 2003 ACS
AN **1999:31673** HCAPLUS
DN **130:218363**
TI Dietary carbohydrate and **insulin resistance**: lessons from humans and animals

AU Denyer, G. S.; Pawlak, D.; **Higgins, J.**; Widdup, G.; Bryson, J.; Caterson, I. D.; Miller, J. Brand
CS Department of Biochemistry, University of Sydney, Sydney, 2006, Australia
SO Proceedings of the Nutrition Society of Australia (1998), 22, 158-167
CODEN: PNSADB; ISSN: 0314-1004
PB Nutrition Society of Australia
DT Journal; General Review
LA English
CC 2-0 (Mammalian Hormones)
AB A review, with 63 refs. Both animal and human studies have shown that the rate of absorption of **starch** can have effects on **insulin** sensitivity and lipogenic rate. In particular, the sensitivity of individual tissues may be changed by frequent exposure to hyperglycemia and **hyperinsulinemia** so as to divert dietary substrates to lipogenesis. Thus, it is possible that the consumption of rapidly digested carbohydrates promotes lower **insulin** sensitivity and higher body fat than low glycemic index foods.
ST review carbohydrate diet **insulin resistance**; diabetes carbohydrate diet **insulin resistance** review; adipose tissue carbohydrate diet review; glycemic index dietary carbohydrate **insulin resistance** review
IT Adipose tissue
Diet
(dietary carbohydrate and **insulin resistance**)
IT Carbohydrates, biological studies
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); FFD (Food or feed use); BIOL (Biological study); PROC (Process); USES (Uses)
(dietary; dietary carbohydrate and **insulin resistance**)
IT Lipids, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(formation; dietary carbohydrate and **insulin resistance**)
IT Diabetes mellitus
(non-**insulin**-dependent; dietary carbohydrate and **insulin resistance**)
IT **50-99-7**, D-**Glucose**, biological studies
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(blood; dietary carbohydrate and **insulin resistance**)
IT **9004-10-8**, **Insulin**, biological studies
RL: ADV (Adverse effect, including toxicity); BIOL (Biological study)
(**resistance**; dietary carbohydrate and **insulin resistance**)
RE.CNT 63 THERE ARE 63 CITED REFERENCES AVAILABLE FOR THIS RECORD
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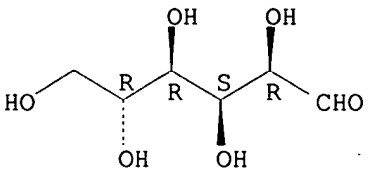
IT **50-99-7**, D-**Glucose**, biological studies
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(blood; dietary carbohydrate and **insulin resistance**
)

RN 50-99-7 HCAPLUS
CN D-Glucose (8CI, 9CI) (CA INDEX NAME)

Absolute stereochemistry.



IT **9004-10-8, Insulin,** biological studies
RL: ADV (Adverse effect, including toxicity); BIOL (Biological study)
(**resistance**; dietary carbohydrate and **insulin resistance**)
RN 9004-10-8 HCAPLUS
CN Insulin (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L50 ANSWER 8 OF 13 HCAPLUS COPYRIGHT 2003 ACS
AN **1997:640554** HCAPLUS
DN **127:272805**
TI Enhancement of microbial colonization of the gastrointestinal tract
IN **Brown, Ian Lewis**; Conway, Patricia Lynne; Topping, David Lloyd; Wang, Xin
PA University of New South Wales, Australia; Burns Philp & Co., Ltd.; Burns Philp Research & Development Pty. Ltd.; Commonwealth Scientific and Industrial Research Organisation; Arnott's Biscuits Ltd.; Gist-Brocades Australia Pty. Ltd.; Goodman Fielder Ingredients Ltd.; Brown, Ian Lewis; Conway, Patricia Lynne; et al.
SO PCT Int. Appl., 18 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM A61K035-78
ICS A61K047-36; A61K035-74; A61K035-72; A23L001-0522
CC 1-9 (Pharmacology)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9734615	A1	19970925	WO 1997-AU176	19970320
	W: AU, CA, JP, KR, NZ, SG, US				
	RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	CA 2249361	AA	19970925	CA 1997-2249361	19970320
	AU 9720182	A1	19971010	AU 1997-20182	19970320
	AU 705095	B2	19990513		
	EP 888118	A1	19990107	EP 1997-908078	19970320
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	NZ 331950	A	20000228	NZ 1997-331950	19970320
	JP 2000506870	T2	20000606	JP 1997-532982	19970320
	US 6221350	B1	20010424	US 1999-155117	19990412
PRAI	AU 1996-8813	A	19960320		
	WO 1997-AU176	W	19970320		

AB Probiotic compns. comprise one or more probiotic microorganisms, a carrier which will function to transport the one or more probiotic microorganisms to the large bowel or other regions of the gastrointestinal tract of an animal, the carrier comprising a modified or unmodified **resistant starch** or mixts. thereof, which carrier acts as a growth or maintenance medium for microorganisms in the large bowel or other regions of the gastrointestinal tract, and an oligosaccharide. PH values in cultures demonstrated synergistic effects of oligosaccharide (Hi-maize **starch** or raftilose) in probiotic compns. contg., e.g., Bifidobacteria.

ST microbe colonization gastrointestinal tract oligosaccharide
IT Oligosaccharides, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(agarose-contg.; enhancement of microbial colonization of the gastrointestinal tract)
IT Oligosaccharides, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(chitooligosaccharides; enhancement of microbial colonization of the gastrointestinal tract)
IT Oligosaccharides, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(cyclic; enhancement of microbial colonization of the gastrointestinal tract)
IT Bacteroides
Bifidobacterium
Clostridium
Crystallization
Digestive tract
Enterococcus
Fusobacterium
Lactobacillus
Lactococcus
Microorganism
Peptostreptococcus
Propionibacterium
Staphylococcus
Streptococcus
(enhancement of microbial colonization of the gastrointestinal tract)
IT Fructooligosaccharides
Galactooligosaccharides
Isomaltooligosaccharides
Maltooligosaccharides
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(enhancement of microbial colonization of the gastrointestinal tract)
IT Oligosaccharides, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**glucose**-contg.; enhancement of microbial colonization of the gastrointestinal tract)
IT Oligosaccharides, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(neoagarose-contg.; enhancement of microbial colonization of the gastrointestinal tract)
IT Oligosaccharides, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(palatinose-contg.; enhancement of microbial colonization of the gastrointestinal tract)
IT 470-55-3, Stachyose 512-66-3, Xylosucrose 512-69-6, Raffinose
4618-18-2, Lactulose **9005-25-8, Starch**, biological studies 87419-56-5, Lactosucrose
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(enhancement of microbial colonization of the gastrointestinal tract)
IT **9005-25-8, Starch**, biological studies
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(enhancement of microbial colonization of the gastrointestinal tract)
RN 9005-25-8 HCAPLUS
CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L50 ANSWER 9 OF 13 HCAPLUS COPYRIGHT 2003 ACS
AN **1997:497954** HCAPLUS
DN **127:190013**
TI A high **amylose** (**amylomaize**) **starch** raises proximal large bowel **starch** and increases colon length in pigs
AU Topping, David L.; Gooden, James M.; **Brown, Ian L.**; Biebrick, Debra A.; McGrath, Leanne; Trimble, Rodney P.; Choct, Mingan; Illman, Richard J.
CS CSIRO (Australia) Div. Human Nutrition, Adelaide, 5000, Australia
SO Journal of Nutrition (1997), 127(4), 615-622
CODEN: JONUAI; ISSN: 0022-3166
PB American Society for Nutritional Sciences
DT Journal
LA English
CC 18-4 (Animal Nutrition)
AB Young male pigs consumed a diet of fatty minced beef, safflower oil, skim milk powder, sucrose, **cornstarch** and wheat bran. **Starch** provided 50% of total daily energy either as low **amylose** **cornstarch**, high **amylose** (**amylomaize**) **cornstarch** or as a 50/50 mixt. of corn and high **amylose** **starch**. Neither feed intake nor body wt. gain was affected by dietary **starch**. Final plasma cholesterol concns. were significantly higher than initial values in pigs fed the 50/50 mixt. of corn and high **amylose starch**. Biliary concns. of lithocholate and deoxycholate were lower in pigs fed high **amylose** **starch**. Large bowel length correlated pos. with the dietary content of high **amylose starch**. Concns. of butyrate in portal venous plasma were significantly lower in pigs fed high **amylose starch** than in those fed **cornstarch**. Neither large bowel digesta mass nor the concns. of total or individual volatile fatty acids were affected by diet. However, the pool of propionate in the proximal colon and the concn. of propionate in feces were higher in pigs fed **amylose starch**. Concns. of **starch** were uniformly low along the large bowel and were unaffected by **starch** type. In pigs with cecal cannula, digesta **starch** concns. were higher with high **amylose** **starch** than with **cornstarch**. Electron microg. examn. of high **amylose starch** granules from these animals showed etching patterns similar to those of granules obtained from human ileostomy effluent. It appears that high **amylose starch** contributes to large bowel bacterial fermn. in the pig but that its utilization may be relatively rapid.
ST **starch amylose** fermn intestine pig
IT Intestinal bacteria
Swine
(a high **amylose** (**amylomaize**) **starch** raises proximal large bowel **starch** and increases colon length in pigs)
IT Bile acids
RL: BOC (Biological occurrence); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
(a high **amylose** (**amylomaize**) **starch** raises proximal large bowel **starch** and increases colon length in pigs)
IT Intestine
(colon; a high **amylose** (**amylomaize**) **starch** raises proximal large bowel **starch** and increases colon length in pigs)
IT Intestinal content
Intestinal content
(large; a high **amylose** (**amylomaize**) **starch** raises proximal large bowel **starch** and increases colon length

in pigs)
IT **9005-25-8, Starch**, biological studies **9005-82-7**
, Amylose
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(a high **amylose** (**amylomaize**) **starch**
raises proximal large bowel **starch** and increases colon length
in pigs)
IT 57-88-5, Cholesterol, biological studies 79-09-4, Propionic acid, biological studies 83-44-3, Deoxycholic acid 107-92-6, Butyric acid, biological studies 434-13-9, Lithocholic acid
RL: BOC (Biological occurrence); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
(a high **amylose** (**amylomaize**) **starch**
raises proximal large bowel **starch** and increases colon length
in pigs)
IT 57-88-5, Cholest-5-en-3-ol (3.beta.)-, biological studies
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(blood; a high **amylose** (**amylomaize**) **starch**
raises proximal large bowel **starch** and increases colon length
in pigs)
IT **9005-25-8, Starch**, biological studies **9005-82-7**
, Amylose
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(a high **amylose** (**amylomaize**) **starch**
raises proximal large bowel **starch** and increases colon length
in pigs)
RN 9005-25-8 HCAPLUS
CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 9005-82-7 HCAPLUS
CN Amylose (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L50 ANSWER 10 OF 13 HCAPLUS COPYRIGHT 2003 ACS
AN **1996:363500** HCAPLUS
DN **125:32365**
TI Probiotic compositions
IN **Brown, Ian L.**; Mcnaught, Kenneth J.; Ganly, Robert N.; Conway, Patricia Lynne; Evans, Anthony John; Topping, David Lloyd; Wang, Xin
PA University of New South Wales, Australia; Burns, Philp and Co. Ltd.; Burns Philp Res. and Dev. Pty. Limited; Mauri Laboratories Pty. Limited; Commonwealth Sci. and Indus. Res. Organ.; Arnott's Biscuits Limited; Goodman Fielder Ingredients Limited; Goodman Fielder Limited; Brown, Ian, L.; et al.
SO PCT Int. Appl., 37 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM A61K035-66
ICS A61K035-72; A61K035-74; A61K047-36; A61K047-00; A23L001-0522; C12N011-10
CC 17-6 (Food and Feed Chemistry)
Section cross-reference(s): 18
FAN.CNT 1
PATENT NO. KIND DATE APPLICATION NO. DATE

PI	WO 9608261	A1	19960321	WO 1995-AU613	19950918
	W: AU, CA, JP, KR, NZ, SG, US				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	CA 2199140	AA	19960321	CA 1995-2199140	19950918
	AU 9535579	A1	19960329	AU 1995-35579	19950918
	AU 687253	B2	19980219		
	EP 778778	A1	19970618	EP 1995-932570	19950918
	EP 778778	B1	20020320		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
	JP 10500142	T2	19980106	JP 1996-509769	19950918
	JP 3037435	B2	20000424		
	AT 214611	E	20020415	AT 1995-932570	19950918
	ES 2176338	T3	20021201	ES 1995-932570	19950918
	US 6060050	A	20000509	US 1997-793892	19970617
PRAI	AU 1994-8230	A	19940916		
	WO 1995-AU613	W	19950918		

AB A probiotic compn. is disclosed which is particularly useful for inclusion in food products to enhance their nutritional value. The compn. comprises one or more probiotic microorganisms such as Bifidobacterium and a carrier to transport the microorganisms to the large bowel or other regions of the gastrointestinal tract. The carrier is a modified or unmodified **resistant starch**, particularly a high **amylose starch**, which acts as a growth or maintenance medium for microorganisms in the large bowel or other regions of the gastrointestinal tract.

ST probiotic additive feed food

IT Freeze drying
(dried probiotic food and feed additives)

IT Drying
(dry probiotic food and feed additives)

IT Bacteria
Bacteroides
Bifidobacterium
Bifidobacterium bifidum
Bifidobacterium longum
Clostridium
Digestive tract content
Eubacterium
Feed
Feeding experiment
Food
Fusobacterium
Lactobacillus
Lactococcus
Microorganism
Peptostreptococcus
Propionibacterium
Saccharomyces
Staphylococcus
Streptococcus
Swine
(probiotic food and feed additives)

IT Beverages
(citrus, dry probiotic food and feed additives)

IT Streptococcus
(intestinal, probiotic food and feed additives)

IT Intestinal content
(large, probiotic food and feed additives)

IT Puddings
(mousses, instant; dry probiotic food and feed additives)

IT Animal growth regulators
RL: BAC (Biological activity or effector, except adverse); BSU (Biological

study, unclassified); FFD (Food or feed use); BIOL (Biological study); USES (Uses)
(promoters, probiotic food and feed additives)
IT Milk preparations
(yogurt, dry probiotic food and feed additives)
IT **9005-25-8, Starch**, biological studies **9005-25-8D, Starch**, esters **9005-82-7, Amylose**
RL: FFD (Food or feed use); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process); USES (Uses)
(probiotic food and feed additives)
IT **9005-25-8, Starch**, biological studies **9005-25-8D, Starch**, esters **9005-82-7, Amylose**
RL: FFD (Food or feed use); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process); USES (Uses)
(probiotic food and feed additives)
RN 9005-25-8 HCAPLUS
CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 9005-25-8 HCAPLUS
CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 9005-82-7 HCAPLUS
CN Amylose (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L50 ANSWER 11 OF 13 HCAPLUS COPYRIGHT 2003 ACS
AN **1996:91073** HCAPLUS
DN **124:144481**
TI Amylopectin **starch** induces nonreversible **insulin resistance** in rats
AU Wiseman, C. Elke; **Higgins, Janine A.**; Denyer, Gareth S.; Miller, Janette C. Brand
CS Human Nutrition Unit, Univ. Sydney, Sydney, 2006, Australia
SO Journal of Nutrition (1996), 126(2), 410-15
CODEN: JONUAI; ISSN: 0022-3166
PB American Institute of Nutrition
DT Journal
LA English
CC 18-4 (Animal Nutrition)
AB **Starches** that are high in amylopectin are digested and absorbed more quickly than **starches** with a high **amylose** content and produce **insulin resistance** in rats during long-term feeding. The aim of this study was to det. whether amylopectin-induced **insulin resistance** could be prevented or reversed by a period of high **amylose** feeding. We employed a randomized design in which two groups of rats were fed either the high **amylose** and then the high amylopectin diet for two consecutive 8-wk periods or vice versa (high amylopectin and then high **amylose**). Four other groups were fed either a high **amylose** or a high amylopectin diet for 8 or 16 wk. All rats were fed two 10-g meals per day (300 kJ/d), and **insulin** sensitivity was assessed by i.v. **glucose** tolerance test (IVGTT) after 8 or 16 wk of feeding. We found no difference in **glucose** tolerance between any group at any time point. **Insulin** responses, however, were 50% higher ($P < 0.01$) after 16 wk of high amylopectin feeding [area under the plasma **insulin** curve (AUC) = 18.1 .+-. 1.4 nmol/L/15 min] compared with high **amylose** feeding (AUC = 13.0 .+-. 1.2 nmol/L/15 min). The two groups which received both diets developed a similar degree of **insulin resistance**, equiv. to that after 16 wk of high amylopectin feeding. The findings

suggest that amylopectin-induced **insulin resistance** cannot be reversed or prevented by either a subsequent or previous period of **amylose** feeding. Taken together, the data suggest that the nature of **starch** in the Western diet influences the development of **noninsulin**-dependent diabetes mellitus in humans.

ST **starch** amylopectin diet **insulin resistance**

IT **9004-10-8, Insulin**, biological studies
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(amylopectin **starch** induces nonreversible **insulin resistance** in rats)

IT **9005-25-8, Starch**, biological studies **9005-82-7**, **Amylose 9037-22-3**, Amylopectin
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(amylopectin **starch** induces nonreversible **insulin resistance** in rats)

IT **50-99-7, Glucose**, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(tolerance; amylopectin **starch** induces nonreversible **insulin resistance** in rats)

IT **9004-10-8, Insulin**, biological studies
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(amylopectin **starch** induces nonreversible **insulin resistance** in rats)

RN 9004-10-8 HCAPLUS
CN Insulin (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT **9005-25-8, Starch**, biological studies **9005-82-7**, **Amylose 9037-22-3**, Amylopectin
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(amylopectin **starch** induces nonreversible **insulin resistance** in rats)

RN 9005-25-8 HCAPLUS
CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9005-82-7 HCAPLUS
CN Amylose (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

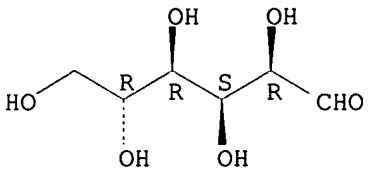
RN 9037-22-3 HCAPLUS
CN Amylopectin (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT **50-99-7, Glucose**, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(tolerance; amylopectin **starch** induces nonreversible **insulin resistance** in rats)

RN 50-99-7 HCAPLUS
CN D-Glucose (8CI, 9CI) (CA INDEX NAME)

Absolute stereochemistry.



L50 ANSWER 12 OF 13 HCAPLUS COPYRIGHT 2003 ACS
AN **1995:222198** HCAPLUS
DN **122:104613**
TI High **amylose starches** - new developments in human nutrition
AU **Brown, I. L.**
CS Goodman Fielder Ingredients Limited, Gladesville, 2111, Australia
SO Proceedings of the Nutrition Society of Australia (1994), 18, 33-9
CODEN: PNSADB; ISSN: 0314-1004
PB Nutrition Society of Australia
DT Journal; General Review
LA English
CC 18-0 (Animal Nutrition)
Section cross-reference(s): 17
AB A review, with 46 refs., on **resistant starches.** **Resistant starch** and dietary fiber content of processed foods, Australian research on the physiol. properties of high-**amylose** corn **starch** (Hi-Maize), baking trials including Hi-Maize, and Hi-Maize in breakfast cereals.
ST review high **amylose starch** nutrition; **resistant** corn **starch** review
IT Animal nutrition
Corn
(high-**amylose starch** in human nutrition)
IT **9005-25-8, Starch**, biological studies **9005-82-7, Amylose**
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(high-**amylose starch** in human nutrition)
IT **9005-25-8, Starch**, biological studies **9005-82-7, Amylose**
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(high-**amylose starch** in human nutrition)
RN 9005-25-8 HCAPLUS
CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 9005-82-7 HCAPLUS
CN Amylose (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L50 ANSWER 13 OF 13 HCAPLUS COPYRIGHT 2003 ACS
AN **1994:486149** HCAPLUS
DN **121:86149**
TI High-**amylose starch** and **resistant starch** fractions
IN Mcnaught, Kenneth J.; Maloney, Eric; **Brown, Ian L.**; Knight, Adrian Timothy
PA Goodman Fielder Ingredients Ltd., Australia
SO PCT Int. Appl., 27 pp.
CODEN: PIXXD2

DT Patent
LA English
IC ICM A01H005-10
ICS C08B030-00; A23L001-308; A23L001-0522
CC 44-6 (Industrial Carbohydrates)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9403049	A1	19940217	WO 1993-AU389	19930730
	W: AU, CA, JP, NZ, US				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	EP 652701	A1	19950517	EP 1993-915566	19930730
	EP 652701	B1	20020109		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
	AU 660560	B2	19950629	AU 1993-45520	19930730
	AU 9345520	A1	19940303		
	JP 08503123	T2	19960409	JP 1993-504825	19930730
	EP 885556	A2	19981223	EP 1998-202909	19930730
	EP 885556	A3	19990609		
	EP 885556	B1	20020918		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE				
	AT 211610	E	20020115	AT 1993-915566	19930730
	ES 2171413	T3	20020916	ES 1993-915566	19930730
	AT 224135	E	20021015	AT 1998-202909	19930730
	US 5714600	A	19980203	US 1995-374645	19950427
	US 5977454	A	19991102	US 1997-815763	19970312
	US 6409840	B1	20020625	US 1997-967826	19971112
PRAI	AU 1992-3894	A	19920731		
	AU 1993-7266	A	19930212		
	EP 1993-915566	A3	19930730		
	WO 1993-AU389	W	19930730		
	US 1995-374645	A3	19950427		

AB Hybrid maize seeds which yield a **starch** having an **amylose** content .gtoreq.80% are disclosed. Compns. including these high **amylose starches** are also disclosed. Fractions of high-**amylose starches** which have been formed on the basis of granule size are shown to have enhanced dietary fiber and/or **resistant starch** content. Such fractions enable the prepn. of food compns. of enhanced dietary fiber and/or **resistant starch** content.

ST hybrid maize **starch** high **amylose** fractionation
IT Food
(high-**amylose** and **resistant starch** for use in)
IT Dietary fiber
(high-**amylose starch** with high content of, from hybrid maize seed, fractionations of)
IT Separation
(fractionation, of hybrid maize **starch** to fractions with high contents of **amylose** and dietary fiber or **resistant starch**)
IT **9005-25-8P, Starch**, preparation
RL: PREP (Preparation)
(hybrid maize-, prepn. of, with high **amylose** and dietary fiber or/and **resistant starch** content)
IT **9005-25-8P, Starch**, preparation
RL: PREP (Preparation)
(hybrid maize-, prepn. of, with high **amylose** and dietary fiber or/and **resistant starch** content)
RN 9005-25-8 HCAPLUS
CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

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=> fil medline
FILE 'MEDLINE' ENTERED AT 14:50:59 ON 25 MAY 2003

 FILE LAST UPDATED: 24 MAY 2003 (20030524/UP). FILE COVERS 1958 TO DATE.

 On April 13, 2003, MEDLINE was reloaded. See HELP RLOAD for details.

 MEDLINE thesauri in the /CN, /CT, and /MN fields incorporate the
 MeSH 2003 vocabulary. See http://www.nlm.nih.gov/mesh/changes2003.html
 for a description on changes.

 This file contains CAS Registry Numbers for easy and accurate
 substance identification.

=> d all

L58  ANSWER 1 OF 1     MEDLINE
AN   2001114425     MEDLINE
DN   21005878   PubMed ID: 11143763
TI   Is there an optimal diet for the hypertriglyceridemic patient?.
AU   Kris-Etherton P M; Taylor D S; Zhao G
CS   Nutrition Department, The Pennsylvania State University, S-126 Henderson
     Building, University Park, PA 16802, USA.. pmk3@psu.edu
SO   JOURNAL OF CARDIOVASCULAR RISK, (2000 Oct) 7
     (5) 333-7. Ref: 30
     Journal code: 9436980. ISSN: 1350-6277.
CY   England: United Kingdom
DT   Journal; Article; (JOURNAL ARTICLE)
     General Review; (REVIEW)
     (REVIEW, TUTORIAL)
LA   English
FS   Priority Journals
EM   200102
ED   Entered STN: 20010322
     Last Updated on STN: 20010322
     Entered Medline: 20010215
AB   Many dietary factors affect plasma triglycerides. Those which decrease
     the triglyceride level include n-3 fatty acids from fish oil, weight loss,
     alcohol restriction, and a higher fat (unsaturated fat) diet, whereas a
     high-carbohydrate, low-fat diet increases triglycerides. The individual
     responses and the associated magnitude of change in triglycerides as a
     result of these different dietary factors will vary. For patients with
     hypertriglyceridemia, fish oil supplements will usually elicit the most
     potent effects. However, some patients can normalize their triglyceride
     level with weight loss plus exercise, by avoiding or limiting their
     alcohol intake, and by increasing the total fat content of their diet. In
     addition, fish oil supplements can help further to reduce plasma
     triglycerides. Thus, the combined effects of multiple dietary
     interventions provide the most potent means of maximally lowering the
     plasma triglyceride level.
CT   Check Tags: Female; Human; Male
     *Coronary Disease: PC, prevention & control
     *Diet, Fat-Restricted
     *Hypertriglyceridemia: DH, diet therapy
     *Hypertriglyceridemia: PC, prevention & control
      Lipids: ME, metabolism
      Lipoproteins: ME, metabolism
      Prognosis
      Risk Assessment
      Treatment Outcome
CN   0 (Lipids); 0 (Lipoproteins)
```

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=> fil hcaplus
FILE 'HCAPLUS' ENTERED AT 14:51:03 ON 25 MAY 2003
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
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FILE COVERS 1907 - 25 May 2003  VOL 138 ISS 22
FILE LAST UPDATED: 23 May 2003  (20030523/ED)

 This file contains CAS Registry Numbers for easy and accurate
 substance identification.


=> d all hitstr tot l57

L57  ANSWER 1 OF 6  HCAPLUS  COPYRIGHT 2003 ACS
AN   1998:388366  HCAPLUS
DN   129:67089
TI   Highly fermentable resistant starch
IN   Keitlitz, Bernd Wolfgang; Coppin, Jozef Victor Jean-Marie; Roper, Harald
     Wilhelm Walter; Bornet, Francis
PA   Cerestar Holding B.V., Neth.
SO   Eur. Pat. Appl., 16 pp.
     CODEN: EPXXDW
DT   Patent
LA   English
IC   ICM  C08B030-12
     ICS  C12P019-16; A23L001-09
CC   17-6 (Food and Feed Chemistry)
     Section cross-reference(s): 14
FAN.CNT 1
     PATENT NO.       KIND  DATE          APPLICATION NO.  DATE
     ---------------  ----  --------      ---------------  --------
PI   EP 846704         A2   19980610      EP 1997-309720   19971202 <--
     EP 846704         A3   19980617
     EP 846704         B1   20020313
          R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
              IE, SI, LT, LV, FI, RO
     CA 2223149        AA   19980603      CA 1997-2223149  19971201
     US 6043229        A    20000328      US 1997-982747   19971202
     AT 214400         E    20020315      AT 1997-309720   19971202
     ES 2170340        T3   20020801      ES 1997-309720   19971202
     AU 9746846        A1   19980604      AU 1997-46846    19971203
     AU 725110         B2   20001005
     JP 10191931       A2   19980728      JP 1997-333266   19971203
PRAI GB 1996-25129     A    19961203
AB   The present invention discloses that retrograded starch having
     more than 55% resistant starch with > 50% chains of DP 10 - 35
     gives rise to a significantly higher amt. of n-butyrate prodn. under
     conditions simulating the human colon.  It is expected that such an
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increased n-butyrate prodn. will diminish the development of colon diseases notably of colon cancer.
ST fermentable resistant **starch** colon cancer prevention; retrograded **starch** colon cancer prevention; butyrate formation resistant **starch** colon
IT Milk preparations
(UHT vanilla milk; highly fermentable resistant **starch** forming butyric acid in human colons for prepn. of)
IT Intestine, neoplasm
(colon; highly fermentable resistant **starch** forming butyric acid in human colons)
IT Disease, animal
(colorectal; highly fermentable resistant **starch** forming butyric acid in human colons)
IT Fatty acids, biological studies
RL: BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative)
(short-chain; highly fermentable resistant **starch** forming butyric acid in human colons)
IT Pea
(**starch**; highly fermentable resistant **starch** forming butyric acid in human colons)
IT 107-92-6, Butyric acid, biological studies
RL: BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative)
(highly fermentable resistant **starch** forming butyric acid in human colons)
IT **9005-25-8DP, Starch**, debranched, retrograded, biological studies 9050-36-6DP, Maltodextrin, debranched, retrograded
RL: FFD (Food or feed use); IMF (Industrial manufacture); BIOL (Biological study); PREP (Preparation); USES (Uses)
(highly fermentable resistant **starch** forming butyric acid in human colons)
IT 9067-73-6, Isoamylase
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); FFD (Food or feed use); BIOL (Biological study); USES (Uses)
(**starch** modification agent; highly fermentable resistant **starch** forming butyric acid in human colons)
IT **9005-25-8DP, Starch**, debranched, retrograded, biological studies
RL: FFD (Food or feed use); IMF (Industrial manufacture); BIOL (Biological study); PREP (Preparation); USES (Uses)
(highly fermentable resistant **starch** forming butyric acid in human colons)
RN 9005-25-8 HCAPLUS
CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L57 ANSWER 2 OF 6 HCAPLUS COPYRIGHT 2003 ACS
AN 1998:144718 HCAPLUS
DN 128:243208
TI Resistant **starch**-an update on its physiological effects
AU **Asp, Nils-Georg**
CS Department of Applied Nutrition and Food Chemistry, Chemical Center, Lund University/Lund Institute of Technology, Lund, S-221 00, Swed.
SO Advances in Experimental Medicine and Biology (**1997**), **427**(Dietary Fiber in Health and Disease), **201**-210
CODEN: AEMBAP; ISSN: 0065-2598
PB Plenum Publishing Corp.
DT Journal; General Review
LA English

CC 18-0 (Animal Nutrition)
AB A review with 67 refs. Resistant **starch** (RS) has emerged as one of the main substrates for colonic fermn., together with other undigestible polysaccharides and oligosaccharides. There are indications that RS may be a good source of butyrate, and that the rate and site of fermn. can be varied and optimized. This makes RS potentially important for colonic health, and prodn. of food products contg. RS challenging. The present RS content in most Western diets is probably low, but can be increased by foods high in RS. The physiol. effects of RS are reviewed, as well as the formation of RS in foods and its anal.
ST review resistant **starch** diet physiol effect; food resistant **starch** physiol effect review
IT Food
Intestinal content
(an update on resistant **starch** physiol. effects)
IT Intestinal content
Intestinal content
(colonic; an update on resistant **starch** physiol. effects)
IT **9005-25-8, Starch,** biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(resistant; an update on resistant **starch** physiol. effects)
IT **9005-25-8, Starch,** biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(resistant; an update on resistant **starch** physiol. effects)
RN 9005-25-8 HCAPLUS
CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L57 ANSWER 3 OF 6 HCAPLUS COPYRIGHT 2003 ACS
AN 1997:650374 HCAPLUS
DN 127:264493
TI Granular resistant **starch** and method of making
IN Haralampu, Stephen G.; Gross, Akiva
PA Opta Food Ingredients, Inc., USA
SO PCT Int. Appl., 24 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C08B030-12
ICS C12P019-16; A23L001-308
CC 44-6 (Industrial Carbohydrates)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9735889	A1	19971002	WO 1997-US4976	19970326 <--
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	US 5849090	A	19981215	US 1996-622844	19960327
	CA 2249313	AA	19971002	CA 1997-2249313	19970326
	AU 9724246	A1	19971017	AU 1997-24246	19970326
	EP 889908	A1	19990113	EP 1997-919933	19970326
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
PRAI	US 1996-622844		19960327		

WO 1997-US4976 19970326

AB A method of producing a granular resistant **starch** comprising the steps of heating a granular native **starch** to swell but not rupture the **starch** granules, debranching the **starch**, e.g., by debranching enzyme, treating the **starch** to retrograde the **amylose** therein, optionally annealing the **starch** and optionally drying the product to a powder is described. Granular resistant **starch** produced by this method and food formulations contg. the granular resistant **starch** are also described.

ST enzyme degrdn resistant **starch** granule; food additive resistant **starch** granule; debranching **starch** granule dietary fiber

IT Dietary fiber
Food
(granular resistant **starch** and food formulations contg.)

IT Milk preparations
(yogurt; granular resistant **starch** and food formulations contg.)

IT **9049-76-7**, Hylon VII
RL: FFD (Food or feed use); PEP (Physical, engineering or chemical process); PRP (Properties); BIOL (Biological study); PROC (Process); USES (Uses)
(granular resistant **starch** and food formulations contg.)

IT **9005-25-8**, **Starch**, processes
RL: FFD (Food or feed use); PEP (Physical, engineering or chemical process); PRP (Properties); BIOL (Biological study); PROC (Process); USES (Uses)
(granular resistant **starch** and method of making)

IT **9049-76-7**, Hylon VII
RL: FFD (Food or feed use); PEP (Physical, engineering or chemical process); PRP (Properties); BIOL (Biological study); PROC (Process); USES (Uses)
(granular resistant **starch** and food formulations contg.)

RN 9049-76-7 HCAPLUS

CN Starch, 2-hydroxypropyl ether (9CI) (CA INDEX NAME)

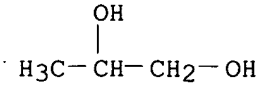
CM 1

CRN 9005-25-8
CMF Unspecified
CCI MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 57-55-6
CMF C3 H8 O2



IT **9005-25-8**, **Starch**, processes
RL: FFD (Food or feed use); PEP (Physical, engineering or chemical process); PRP (Properties); BIOL (Biological study); PROC (Process); USES (Uses)
(granular resistant **starch** and method of making)

RN 9005-25-8 HCAPLUS

CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L57 ANSWER 4 OF 6 HCAPLUS COPYRIGHT 2003 ACS
AN 1997:48894 HCAPLUS
DN 126:61804
TI Process for producing amylase-resistant granular **starch** with high content of dietary fiber
IN Shi, Yong-Chen; Trzasko, Peter T.
PA National Starch and Chemical Investment Holding Corporation, USA
SO Eur. Pat. Appl., 12 pp.
CODEN: EPXXDW
DT Patent
LA English
IC ICM C08B030-12
ICS C08B030-20; A23L001-308
CC 44-6 (Industrial Carbohydrates)
Section cross-reference(s): 17
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 747397	A2	19961211	EP 1996-108032	19960520 <--
	EP 747397	A3	19970924		
	R: AT, BE, DE, DK, ES, FR, GB, IT, NL, SE				
	US 5593503	A	19970114	US 1995-479073	19950607
	AU 9652271	A1	19961219	AU 1996-52271	19960515
	AU 715194	B2	20000120		
	CA 2178128	AA	19961208	CA 1996-2178128	19960604
	JP 09012601	A2	19970114	JP 1996-146157	19960607
	JP 2779345	B2	19980723		
PRAI	US 1995-479073		19950607		

AB The granular **starch** with high dietary fiber content is produced by heating a high-**amylose starch** having **amylose** content of .gtoreq.40% and a water content of 10-80% to a temp. of from about 60 to 160.degree.. The granular **starch** retains its granular structure and has a total dietary fiber content of .gtoreq.12%. Food products contg. this resistant granular **starch** are also provided.

ST granular **starch** amylase resistance; cookie formulation amylase resistant **starch**; cake formulation amylase resistant **starch**; beverage formulation amylase resistant **starch**; pasta formulation amylase resistant **starch**; food formulation amylase resistant **starch**; dietary fiber content granular **starch**; heating high **amylose starch** amylase resistance

IT Bakery products
(cakes; process for producing amylase-resistant granular **starch** with high content of dietary fiber for food formulation)

IT Bakery products
(cookies; process for producing amylase-resistant granular **starch** with high content of dietary fiber for food formulation)

IT Bakery products
(crackers; process for producing amylase-resistant granular **starch** with high content of dietary fiber for food formulation)

IT Beverages
Cereal (grain)
Dietary fiber
Food
Pasta
(process for producing amylase-resistant granular **starch** with high content of dietary fiber for food formulation)

IT **9005-25-8**, Hylon V, processes **9049-76-7**, Hylon VII
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(process for producing amylase-resistant granular **starch** with

high content of dietary fiber for food formulation)
IT **9005-25-8**, Hylon V, processes **9049-76-7**, Hylon VII
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(process for producing amylase-resistant granular **starch** with high content of dietary fiber for food formulation)
RN 9005-25-8 HCAPLUS
CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 9049-76-7 HCAPLUS
CN Starch, 2-hydroxypropyl ether (9CI) (CA INDEX NAME)

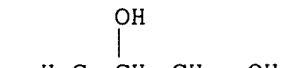
CM 1

CRN 9005-25-8
CMF Unspecified
CCI MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 57-55-6
CMF C3 H8 O2



L57 ANSWER 5 OF 6 HCAPLUS COPYRIGHT 2003 ACS
AN 1993:546593 HCAPLUS
DN 119:146593
TI An enzyme-resistant **starch** for regulation of blood cholesterol level and body weight
IN Miwa, Toshiaki; Hidaka, Takayoshi; Hisada, Yoji; Ohfuji, Takehiko; Pomeranz, Yeshajahu
PA Kanegafuchi Kagaku Kogyo K. K., Japan
SO Eur. Pat. Appl., 9 pp.
CODEN: EPXXDW
DT Patent
LA English
IC ICM A61K031-715
ICS A23L001-0522; A23L001-308; A23L001-09
CC 63-6 (Pharmaceuticals)
Section cross-reference(s): 1, 17
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI EP 550060	A1	19930707	EP 1992-122103	19921229 <--
R: DE, FR, GB, IT, NL, SE				
US 5268367	A	19931207	US 1991-814642	19911230
JP 06065082	A2	19940308	JP 1992-359741	19921228
PRAI US 1991-814642		19911230		

AB An enzyme-resistant **starch** is effective for lowering LDL-cholesterol level and for preventing obesity. The **starch** is also useful as food and beverage material for the same effects. Thus, **starch** was treated with .alpha.-amylase to obtain an enzyme-resistant **starch**. Anticholesterolemic and antiobesity effects of the **starch** was tested with hamsters. A tablet was

formulated contg. the **starch** 80, corn **starch** 4, lactose 10, Ca CMC 4, Me cellulose 1.5, and Mg stearate 0.5%.

ST enzyme resistant **starch** anticholesterolemic; antiobesity agent enzyme resistant **starch**; food diet enzyme resistant **starch**

IT Anticholesteremics and Hypolipemics
Antiobesity agents
(enzyme-resistant **starch** for)

IT Beverages
(diet, enzyme-resistant **starch** for)

IT Food
(dietetic, enzyme-resistant **starch** for)

IT Lipoproteins
RL: BIOL (Biological study)
(low-d., cholesterol of, lowering of, enzyme-resistant **starch** for)

IT Pharmaceutical dosage forms
(tablets, enzyme-resistant **starch** as anticholesterolemic and antiobesity agent in)

IT **9005-25-8, Starch**, biological studies
RL: BIOL (Biological study)
(amylase treatment in, for prepn. of anticholesterolemic and antiobesity agent)

IT 57-88-5, Cholesterol, biological studies
RL: BIOL (Biological study)
(of blood, lowering of, enzyme-resistant **starch** for)

IT 9000-90-2, .alpha.-Amylase
RL: BIOL (Biological study)
(**starch** treatment with, for prepn. of anticholesterolemic and antiobesity agent)

IT **9005-25-8, Starch**, biological studies
RL: BIOL (Biological study)
(amylase treatment in, for prepn. of anticholesterolemic and antiobesity agent)

RN 9005-25-8 HCAPLUS
CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L57 ANSWER 6 OF 6 HCAPLUS COPYRIGHT 2003 ACS
AN 1992:658261 HCAPLUS
DN 117:258261
TI resistant **starch** as triacylglycerol- and cholesterol-lowering agent
IN Van Amelsvoort, Johannes Mateus Maria; Deckere, Emile Alphonsus; Kloots, Willem Jan
PA Unilever N. V., Neth.; Unilever PLC
SO Eur. Pat. Appl., 4 pp.
CODEN: EPXXDW
DT Patent
LA English
IC ICM A61K031-70
ICS A23L001-0522; A23L001-308
CC 63-6 (Pharmaceuticals)
Section cross-reference(s): 1, 17
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI	EP 506166	A2	19920930	EP 1992-200659	19920309	<--
	EP 506166	A3	19930113			
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, NL, PT, SE					
	CA 2063784	AA	19920926	CA 1992-2063784	19920323	
	JP 05236908	A2	19930917	JP 1992-96966	19920324	

PRAI EP 1991-200663 19910325
EP 1991-201232 19910524
AB Resistant **starch** is used as triacylglycerol- and cholesterol-lowering agent. A suspension of modified corn **starch** having an **amylose** content of 40% and an amylopectin content of 60% was made by suspending 41.6 g of this **starch** in 125 g of water at 95.degree. for 30 min. cooling to 18.degree. and freezing the gelatinized mass to 18.degree. for .gtoreq. 1 day. The gel thus obtained contained 23 % resistant **starch**. The gel was incorporated into a diet and was fed to rats for 3 wk. The level of total blood cholesterol and triacylglycerol in rats fed with resistant **starch** was decreased as compared with controls that had diet low in resistant **starch**.
ST resistant **starch** triacylglycerol cholesterol decrease
IT Glycerides, biological studies
RL: BIOL (Biological study)
(of blood, lowering of, with **starch**)
IT Anticholesteremics and Hypolipemics
(**starch**, prepn. of)
IT **9005-25-8**, **Starch**, biological studies
RL: BIOL (Biological study)
(as triacylglycerol- and cholesterol-lowering agent)
IT 57-88-5, Cholesterol, biological studies
RL: BIOL (Biological study)
(of blood, lowering of, with **starch**)
IT **9005-25-8**, **Starch**, biological studies
RL: BIOL (Biological study)
(as triacylglycerol- and cholesterol-lowering agent)
RN 9005-25-8 HCAPLUS
CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

=> fil wpix
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FILE LAST UPDATED: 22 MAY 2003 <20030522/UP>
MOST RECENT DERWENT UPDATE: 200332 <200332/DW>
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http://www.derwent.com/userguides/dwpi_guide.html <<<

=> d all abeq tech abex tot

L109 ANSWER 1 OF 22 WPIX (C) 2003 THOMSON DERWENT
AN 2002-280846 [32] WPIX
CR 2002-280845 [32]; 2002-488790 [52]; 2002-488791 [52]
DNC C2002-082617
TI Use of nutritional composition, comprising protein-, lipid-, carbohydrate-sources and macro-nutrient profile, for preparing ingestible carrier for improving muscle protein synthesis.
DC D13
IN ANANTHARAMAN, H G; BALLEVRE, O; BEAUFRERE, B; DANGIN, M; FUCHS, E C; GARCIA-RODENAS, C L; GUIGOZ, Y; LEATHWOOD, P; MALLANGI, C R; REIFFERS-MAGNANI, K; TURINI, M
PA (INRG) INST NAT RECH AGRONOMIQUE; (NEST) SOC PROD NESTLE SA
CYC 96
PI WO 2002015720 A2 20020228 (200232)* EN 24p A23L001-30 <--
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PH PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
AU 2001091777 A 20020304 (200247) A23L001-30 <--
ADT WO 2002015720 A2 WO 2001-EP9579 20010820; AU 2001091777 A AU 2001-91777 20010820
FDT AU 2001091777 A Based on WO 200215720
PRAI US 2000-227117P 20000822
IC ICM **A23L001-30**
ICS **A23L001-302**; **A23L001-305**
AB WO 200215720 A UPAB: 20020820
NOVELTY - A composition, comprising protein source containing at least 50 weight % of whey protein, lipid source having omega omega 3-6 fatty acid ratio of 5:1-10:1, a carbohydrate source and macro-nutrient profile comprising vitamin E and C, is used for preparing an ingestible carrier. The protein source and lipid source provides at least 8% and 18% respectively, of the total calories of the composition.

USE - For preparing an ingestible carrier for use as nutritional supplement (in the form of pudding with thin custard or flan like texture) for improving muscle protein synthesis, preventing muscle loss, or accelerating muscle mass recovery, in patient suffering from muscle mass depletion, due to appetite, trauma, illness, surgery, old age. Also in patients having problems in digesting other sources of proteins such as persons having chronic gastritis. L-(113C) leucine (99 mol percent excess, MPE), L-(5,5,5-2H3) leucine (97 MPE) and sodium (13C) bicarbonate (99 MPE) were obtained from Eurisotop (Gif-sur-Yvette, France). The tracers were administered intravenously (L-(1-13C) leucine and (13C) bicarbonate). L-(5,5,5-2H3) leucine was employed to produce two intrinsically labeled bovine milk proteins fractions. casein and whey proteins. Labeled proteins were obtained by infusing a lactating cow with the deuterated tracer, collecting milk and purifying the 2 protein fractions by micro-filtration and ultrafiltration. The leucine enrichments were 8.28 and 8.16 MPE, respectively. Labeled proteins fractions were mixed with their respective unlabeled fraction, to obtain a total concentration of 10 micro mol/kg L-(5,5,5-2H3) leucine.

Nine elderly healthy male volunteers who were 71.8 plus or minus 1 years old, without any medical history of renal, cardiovascular, gastrointestinal or endocrine disease, participated in the study. After the supplement containing casein (CAS), only a slight increase of non-oxidative leucine disposal (NOLD), an index of whole body protein synthesis, was detected. In contrast, ingestion of the supplement containing whey protein (WP) induced a marked increase of NOLD during 40-160 min, which was significantly higher than that of CAS (P less than 0.01). After ingestion of the supplement containing WP, postprandial leucine balance (an index of protein balance) over 7 h was 135 plus or minus 18 micro mol/kg, nearly 3-fold higher than after ingestion of the

supplement containing casein.

ADVANTAGE - The composition containing whey protein is easy to digest, and it can produce at least a 2-fold increase in whole body protein deposition in elderly people as compared to casein as the protein. This helps patients to conserve muscle protein, rebuild muscle protein more rapidly, and hence get their strength back faster. The composition has a well balanced lipid protein and provides a readily available energy source. Despite the high proportion of partially hydrolyzed protein, in the composition it is physically stable and has a very acceptable taste. The profile aids replenishment of nutrients required in higher quantities during periods of illness or recovery due to oxidative stress or inflammatory conditions. The probiotic micro-organism provides the advantage of restoring the natural balance of the intestinal flora following antibiotic therapy. This product has the advantage of inhibiting the growth of Helicobacter pylori in the stomach which is associated with the development of ulcer particularly in individuals having gastritis. The composition can be simply provided in a functional food product, without the need for special administration. The nutritional supplement has an energy content of 800-2000 kcal/l, preferably 1000-1500 kcal/l.

DESCRIPTION OF DRAWING(S) - The figure illustrates graphically, protein synthesis after consumption of nutritional supplements containing whey protein or casein.

Dwg.1/2

FS CPI

FA AB; GI

MC CPI: **D03-H01T2**

TECH UPTX: 20020521

TECHNOLOGY FOCUS - FOOD - Preferred Components: The whey protein includes a partially hydrolyzed whey protein. The whey protein hydrolyzate constitute 50 wt.% of the protein source in the composition. The lipid source comprises 40-65 wt.% of mono-**unsaturated** fatty acids, 15-30 wt.% of poly-**unsaturated** fatty acids and less than 30 wt.% of saturated fatty acids. The carbohydrates source comprises sucrose, corn syrup, and/or maltodextrin.

Preferred Composition: The composition includes caseino-glycomacropeptide. The composition includes micro-nutrient(s) selected from vitamin E, vitamin C, taurine, folic acid and vitamin B-12. The composition comprises at least one prebiotic fiber selected from inulin, acacia gum, **resistant starch**, dextran, xylo-oligosaccharides, and/or fructo-oligosaccharides. The composition includes at least one micro-organism such as probiotic micro-organism.

Preferred Properties: The protein, lipid and carbohydrate sources respectively provides up to 20%, 25-35% and 50-60% of the total energy of the composition.

ABEX UPTX: 20020521

ADMINISTRATION - The nutritional supplement is taken in multiple doses, e.g. 2-5 times or in single dose daily.

EXAMPLE - A ready-to-drink nutritional supplement including (in weight%) (energy %) whey protein (4.8) (16), carbohydrate (13) (54) such as maltodextrin and sucrose, lipids (2.8) (30) such as high oleic safflower corn oil and canola oil, and vitamins and minerals (at least 5%), was prepared. The lipid mixture contained saturated fatty acids (25), mono-unsaturated fatty acids (55) and polyunsaturated fatty acids (20). The n-6:n-3 ratio was about 7:1. The formula contained 30 IU of vitamin E and 60 mg of vitamin C per serving. The energy density of the supplement was 1000 kcal/l.

L109 ANSWER 2 OF 22 WPIX (C) 2003 THOMSON DERWENT

AN 2002-280845 [32] WPIX

CR 2002-280846 [32]; 2002-488790 [52]; 2002-488791 [52]

DNC C2002-082616

TI Composition as nutritive supplement for sick patient, comprises sources of

protein having preset amount of whey protein, lipid with preset fatty acid, carbohydrate and macro-nutrient, providing preset total calories.

DC D13

IN ANANTHARAMAN, H G; FUCHS, E C; GARCIA-RODENAS, C L; GUIGOZ, Y; LEATHWOOD, P; MALLANGI, C R; REIFFERS-MAGNANI, K; TURINI, M

PA (NEST) SOC PROD NESTLE SA

CYC 96

PI WO 2002015719 A2 20020228 (200232)* EN 20p A23L001-29 <--
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PH PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
AU 2001095488 A 20020304 (200247) A23L001-29 <--

ADT WO 2002015719 A2 WO 2001-EP9578 20010820; AU 2001095488 A AU 2001-95488 20010820

FDT AU 2001095488 A Based on WO 200215719

PRAI US 2000-227117P 20000822

IC ICM **A23L001-29**
ICS **A23L001-302; A23L001-305**

AB WO 200215719 A UPAB: 20020820

NOVELTY - A composition comprises protein source providing at least 8% of the total calories, lipid source providing at least18% of the total calories, carbohydrate source, and macro-nutrient profile comprising at least vitamin E and C. The protein source comprises at least 50 weight % of whey protein of the protein source. The lipid source has omega (omega) 3-6 fatty acid ratio of approximately 5:1-10:1.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(1) use of the composition as nutritional supplement; and

(2) producing the composition which involves blending protein source, lipid source, carbohydrate source and micro-nutrients.

USE - For use as nutritional supplement (claimed), in pet food, for use in preparing ingestable carrier, functional food or medicament for supplementing nutrition, prevention or treatment of convalescing patients recovering from illness or surgery, for persons having limited appetite such as elderly, children or anorexic patients, persons having impaired ability to digest protein and other sources of protein such as persons having chronic gastritis who have reduced gastric pepsin digestion, for sick patients, for protein-energy malnutrition, for persons suffering from sepsis, injury, burns and inflammation, for stressed patients having depleted glutamine status, for promoting glutamine synthesis in patients suffering from injured, diseased intestines or maintained physiological function of intestine, for maintaining/increasing plasma glutamine levels in humans and animals, for improving immune function, for patients suffering from impaired/reduced mucin production such as patients undergoing inflammatory response suffering from malnutrition, suffering from cystic fibrosis, malignancy, chronic inflammatory bowel diseases, ulcerative colitis and Crohn's disease.

ADVANTAGE - The composition is easier to digest and less prone to induce satiety, and hence reduces problems of patient not consuming sufficient amount of supplement. Rich components of the composition provides supplement which is more rapidly digested, enabling patients to consume therapeutically effective amount of supplement or other food to provide adequate nutrition. The composition has well-balanced lipid profile which provides readily available energy source. The composition is physically stable, less viscous and lighter, and has favorable taste, when compared conventionally. The composition enables efficient and quick regain of strength, and hence helps in recovery of convalescing patient. The composition in powder-form, fortified beverage in liquid-form, bar, or in pudding with custard or flan-like texture, is easily consumed even by persons with dysphagia or other swallowing problems. The composition is

formulated for human consumption and/or administration, preferably provided in functional food product which does not require any special administration. Probiotic microorganism restores natural balance of intestinal flora after antibiotic therapy. The composition efficiently inhibits growth of Helicobacter pylori in stomach causing ulcer in individuals having gastritis. The composition rich in vitamin E and C, and taurine, is used to replete levels of nutrients in blood following depletion related to infection, sepsis or other oxidative stress. Prebiotic fiber beneficially affects host by selectively stimulating growth and/or activity of bacteria in colon having potential to improve host health. Soluble, prebiotic fibers promote growth of bifidobacteria in gastrointestinal tract, and prevents/reduces growth of pathogens such as Clostridiae. Whey protein has high threonine content (important building block of mucins), and hence supplement is provided to patients suffering from impaired/reduced mucin production like patients undergoing inflammatory response suffering from malnutrition, undergoing treatment including administration of non-steroidal antiinflammatory drugs, and after total parenteral nutrition. Whey protein has high cysteine content (important antioxidant and immediate precursor of glutathione), and hence supplement is provided to patients suffering from glutathione depletion and low antioxidant status.

Dwg.0/0

FS CPI

FA AB

MC CPI: D03-G; **D03-H01T2**

TECH UPTX: 20020521

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Protein: Whey protein comprises at least 50 wt.% of partially or fully hydrolyzed whey protein. The whey protein hydrolyzate comprises at least 50 wt.% of the protein source.

Preferred Composition: The composition comprises protein source that provides up to 20%, more preferably 10-20% of the total energy, lipid source provides 25-35% of the total energy, and carbohydrate source provides 50-60% of the total energy of the composition. The lipid source comprises 40-65 wt.% of mono-**unsaturated** fatty acids. The composition comprises less than 30 wt.% of saturated fatty acid, and further comprises casein-glycomacropeptide, prebiotic fiber(s), and probiotic microorganism(s).

Preferred Carbohydrate Source: Carbohydrate source comprises sucrose, corn syrup and/or maltodextrin. Preferred Micro-nutrient: Micro-nutrient is vitamin E, vitamin C, taurine, folic acid and/or vitamin B12.

Preferred Fiber: Prebiotic fiber is inulin, acacia gum, **resistant starch**, dextran, xylo-oligosaccharides and/or fructo-oligosaccharides.

Preferred Process: The protein is hydrolyzed with enzyme(s) at pH 6.6-8.8, at 40-70degreesC and at an enzyme concentration of 0.5-2.5% of the protein, for 5-120 minutes. The process further involves adding at least one probiotic or prebiotic to the product.

ABEX UPTX: 20020521

EXAMPLE - (In weight%) Protein (whey protein) (4.8) (energy 16%), carbohydrate (maltodextrin and sucrose) (13) (energy 54%), lipid (high oleic safflower oil, corn oil and canola oil) (2.8 g) (energy 30%), and vitamins and minerals (at least 5% of RDA), were mixed, and a ready-to-drink nutritional supplement was obtained. The lipid mixture contained saturated fatty acids (25), monounsaturated fatty acids (55) and polyunsaturated fatty acids (20), with omega-6 (n-6):omega-3(n-3) of 7:1. The supplement contained 30 international units (IU) of vitamin E and 60 mg of vitamin C per serving, and energy density of 1000 Kcal/l.

L109 ANSWER 3 OF 22 WPIX (C) 2003 THOMSON DERWENT

AN **2001-648636** [74] WPIX

DNC **C2001-191477**

TI Regulation of carbohydrate and fat metabolism of ,e.g., human involves

replacing daily carbohydrate intake with **resistant starch** and saturated fat intake with **unsaturated** fat.

DC D13

IN **BROWN, I L; BROWN, M A; HIGGINS, J; STORLIEN, L H; TAPSELL, L C**

PA (PENF-N) PENFORD AUSTRALIA LTD; (BROW-I) BROWN I L; (BROW-I) BROWN M A; (HIGG-I) HIGGINS J; (STOR-I) STORLIEN L H; (TAPS-I) TAPSELL L C; (PENF-N) PENFORD LTD

CYC 96

PI WO 2001076394 A1 20011018 (200174)* EN 50p A23L001-308 <--
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AU 2001046247 A 20011023 (200213) A23L001-308 <--
NO 2002004722 A 20021129 (200308) A23L001-308 <--
EP 1267642 A1 20030102 (200310) EN A23L001-308 <--
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR
BR 2001009960 A 20030211 (200317) A23L001-308 <--
US 2003045504 A1 20030306 (200320) A61K031-718 <--
KR 2002090229 A 20021130 (200325) A23L001-308 <--

ADT WO 2001076394 A1 WO 2001-AU392 20010406; AU 2001046247 A AU 2001-46247 20010406; NO 2002004722 A WO 2001-AU392 20010406, NO 2002-4722 20021002; EP 1267642 A1 EP 2001-919008 20010406, WO 2001-AU392 20010406; BR 2001009960 A BR 2001-9960 20010406, WO 2001-AU392 20010406; US 2003045504 A1 WO 2001-AU392 20010406, US 2002-9023 20020412; KR 2002090229 A KR 2002-713433 20021007

FDT AU 2001046247 A Based on WO 200176394; EP 1267642 A1 Based on WO 200176394; BR 2001009960 A Based on WO 200176394

PRAI AU 2000-6733 20000406

IC ICM **A23L001-308; A61K031-718**
ICS **A23L001-30; A61K031-202**

AB WO 200176394 A UPAB: 20011217

NOVELTY - A carbohydrate and fat metabolism in an individual is regulated by replacing at least 5% of the individual's daily carbohydrate intake with **resistant starch** and at least 10% of the individual's saturated fat intake with **unsaturated** fat.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:

(1) a method of processing a foodstuff for use in the inventive method comprising substituting constituents with a low **resistant starch** content with constituents with a high **resistant starch** content and substituting some or all of the saturated fats with **unsaturated** fats; and

(2) a composition comprising at least 2 g **resistant starch** and at least 2 g **unsaturated** fat in which **resistant starch** is present in a proportion of at least 5 wt.% total **starch** content.

USE - The invention is used for regulating carbohydrate and fat metabolism in an individual, e.g. animals or humans, by manipulating the diet through feed, food, supplements, and pharmaceuticals. It is applicable to all age ranges, such as prepubescents, young adults (18-24 years old), middle-aged adults (35-50 years old), and older adults (over 50 years old).

ADVANTAGE - The invention achieves an enhancement of fat utilization in an individual, e.g. a reduction in fat accumulation (in white adipose tissue, brown adipose tissue, and/or muscle tissue), and/or an increase in fat oxidation (which may be evidenced by a reduction in respiratory quotient); a reduction of plasma leptin concentrations; an increase in satiety in an individual for a given caloric intake; treatment of obesity; a reduction of incidence or risk of obesity in an individual; a reduction

of incidence or risk of non-insulin dependent diabetes mellitus in an individual; a reduction in the post-prandial plasma glucose and/or insulin levels in an individual following food consumption by the individual; regulation of an individual's body mass (e.g., to increase or decrease the individual's body mass index or to maintain a desired body mass index); body shaping; and an improvement in energy utilization during exercise such as sports activities, e.g., to improve sports performance (all claimed).
Dwg.0/13

FS CPI
FA AB
MC CPI: **D03-H01T2**
TECH UPTX: 20011217
TECHNOLOGY FOCUS - PHARMACEUTICALS - Preferred Method: At least 60% of the individual's fat intake is replaced with an **unsaturated** fat.
Preferred Composition: The composition is in the form of a low calorie diet having an energy content of 800-1200, preferably 2000 kcal per day. It may also be in the form of granules or a powdery mixture being soluble, suspendable, dispersible, or emulsifiable in a water-containing liquid.

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Components: Some or all of the **resistant starch** is, or is derived from, a high amylose maize **starch** having an amylose content of at most 50 wt.%.
The **unsaturated** fat is present in a proportion of at least 25, preferably 50 wt.% of the total fat content.
The **unsaturated** fat can be mono-**unsaturated** fat, a poly-**unsaturated** fat, an omega-3 fat, or an omega-6 fat.
The composition further includes ingredient(s), e.g. flavoring agent, vitamin source, mineral source, electrolyte, or trace element.

L109 ANSWER 4 OF 22 WPIX (C) 2003 THOMSON DERWENT
AN **2001-123135** [13] WPIX
CR 2002-268854 [18]
DNN **N2001-090387** DNC **C2001-035799**
TI Delivery capsules and their preparation and apparatus for their preparation.
DC A11 A14 A23 A25 A96 A97 B07 D13 P33
IN **BROWN, M D**; MUNCASTER, B J; NOWAK, E Z; NOWAK, E
PA (BIOP-N) BIOPROGRESS TECHNOLOGY INT INC
CYC 92
PI WO 2001003676 A1 20010118 (200113)* EN 20p A61K009-48
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TZ UG ZW
W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
GB 2353950 A 20010314 (200117) A61K009-48
AU 2000059944 A 20010130 (200127) A61K009-48
EP 1194130 A1 20020410 (200232) EN A61K009-48
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI
ADT WO 2001003676 A1 WO 2000-GB2616 20000707; GB 2353950 A GB 2000-16819 20000707; AU 2000059944 A AU 2000-59944 20000707; EP 1194130 A1 EP 2000-946054 20000707, WO 2000-GB2616 20000707
FDT AU 2000059944 A Based on WO 200103676; EP 1194130 A1 Based on WO 200103676
PRAI GB 1999-16033 19990709
IC ICM A61K009-48
ICS A61J003-07
AB WO 200103676 A UPAB: 20020521
NOVELTY - A delivery capsule having at least two separate chambers is new.
DETAILED DESCRIPTION - A delivery capsule having at least two

separate chambers is new.

INDEPENDENT CLAIMS are also included for the following:

(1) a method of encapsulation comprising supplying two films of material capable of deforming plastically on heating and/or when partially solvated, heating the films and/or applying solvent, forming the films into suitable shaped capsule portions, supplying respective substances to the capsule portions of the film, supplying a film of a dividing septum material to at least one of the filled capsule portions, sealing the capsule portions and the septum material together for form a capsule having at least two separate chambers.

(2) an enhancement apparatus for producing the above capsules comprising means for supplying two films of material to an encapsulation unit, plastically deforming each film to form shaped capsule portions, supplying respective substances to the capsule portions, supplying the film of dividing septum to at least one of the filled capsule portions, sealing together the capsule portions and septum material.

USE - For the delivery of drug and cosmetics.

ADVANTAGE - The contents of the delivery chambers are kept separate from each other until delivery.

DESCRIPTION OF DRAWING(S) - The figure is a schematic sectional view of a delivery capsule.

Dwg.1/2

FS CPI GMPI

FA AB; GI; DCN

MC CPI: A12-V01; B04-C02A2; **B04-C02B**; B04-C02D; B04-C03; B04-N02; B11-C05; B12-M11C; D03-J

TECH UPTX: 20010307

TECHNOLOGY FOCUS - MECHANICAL ENGINEERING - Preferred Capsule: Each chamber contains a different material, preferably in a metered dose. The capsule includes a dividing wall (DW) or septum (SP), defining in part two separate chambers, preferably comprising two layers of material adhered together. The DW or SP preferably comprises a median wall symmetrically arranged to form two chambers of similar size and shape. The two chambers are designed to release their contents under similar circumstances and each chamber is preferably defined at least in part by different materials. The capsule is formed from a heat-sealable material capable of deforming plastically on heating and/or when partially solvated. At least part of the capsule material is coated.

TECHNOLOGY FOCUS - POLYMERS - The capsule is prepared from hydroxypropyl methylcellulose, pectin, polyethylene oxide, polyvinyl alcohol, alginate, polycaprolactone and/or gelatinized **starch** based materials, especially at least in part from hydroxypropyl methylcellulose coated with alginate.

ABEX UPTX: 20010307

EXAMPLE - A dual delivery capsule as shown in the figure where the septum 16 and the capsule walls 12 and 14 are hydroxypropyl methylcellulose.

L109 ANSWER 5 OF 22 WPIX (C) 2003 THOMSON DERWENT

AN **2000-499041** [44] WPIX

DNC **C2000-149704**

TI Microbial preparation for food products and biocontrol agents, comprises microbes grown in media containing **resistant starch** and having increased growth/yield potential or increased survival/recovery rate in product.

DC B04 C05 D13 D16

IN **BROWN, I L**; CONWAY, P L; LUCAS, R J; WANG, X

PA (FOOD-N) FOOD TECHNOLOGY INNOVATIONS PTY LTD

CYC 91

PI WO 2000041576 A1 20000720 (200044)* EN 46p A23L001-0522

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ TZ UG ZW

W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES

FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

AU 2000024248 A 20000801 (200054) A23L001-0522
NO 2001003388 A 20010821 (200158) A23L001-0522
EP 1150577 A1 20011107 (200168) EN A23L001-0522
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI
KR 2001101531 A 20011114 (200230) A61K035-74
JP 2002534108 W 20021015 (200282) 62p C12N001-00
ZA 2001006115 A 20021224 (200309) 62p A23L000-00

ADT WO 2000041576 A1 WO 2000-AU21 20000114; AU 2000024248 A AU 2000-24248 20000114; NO 2001003388 A WO 2000-AU21 20000114, NO 2001-3388 20010709; EP 1150577 A1 EP 2000-902498 20000114, WO 2000-AU21 20000114; KR 2001101531 A KR 2001-708910 20010713; JP 2002534108 W JP 2000-593196 20000114, WO 2000-AU21 20000114; ZA 2001006115 A ZA 2001-6115 20010725

FDT AU 2000024248 A Based on WO 200041576; EP 1150577 A1 Based on WO 200041576; JP 2002534108 W Based on WO 200041576

PRAI AU 1999-8168 19990114

IC ICM A23L000-00; A23L001-0522; A61K035-74; C12N001-00
ICS A23K001-16; A23L001-30; A61K035-66; A61K035-72; A61K047-36; A61P001-00; C12N001-14; C12N001-16; C12N001-20; C12N011-10

ICI C12N001-00; C12N001-00; C12N001-00; C12N001-00; C12N001-00; C12N001-00; C12R001:01; C12R001:145; C12R001:23; C12R001:44; C12R001:46; C12R001:85

AB WO 200041576 A UPAB: 20000913
NOVELTY - A microbial preparation (I) comprising microbes grown or cultured in media based on, or containing, **resistant starch** and having increased growth/yield potential, or increased survival/recovery rate in a product, is new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(1) preparation (II) of (I); and

(2) a product (III) containing (I).

ACTIVITY - None given.

MECHANISM OF ACTION - None given.

USE - The **resistant starch** in microbial culture media is useful for producing microbes having increased growth/yield potential or an increased survival rate/recovery in a product (claimed). (I) is useful as prophylactic and therapeutic agents, in prebiotic and probiotic preparations and products including food, feed, neutraceutical and pharmaceuticals, for non-digestive tract applications like the nasal and vaginal tracts, and in situations relating to biocontrol and bioremediation.

Dwg.0/14

FS CPI

FA AB; DCN

MC CPI: B04-A10; B04-B04K; **B04-C02B**; B04-F10; C04-A10; C04-B04K; **C04-C02B**; C04-F10; D03-B; D03-E; D03-G; D03-H; D05-A02; D05-H08

TECH UPTX: 20000913
TECHNOLOGY FOCUS - BIOLOGY - Preparation: (II) comprises growing or culturing microbes in media based on, or containing, **resistant starch** and harvesting the culture microbes.
Preferred Microbial Preparation: In (I) the **resistant starch** is type RS1, RS2, RS3 or RS4 and is derived from maize **starch** having an amylose content of at least 90% (w/w), rice, barley, wheat, legume, potato or banana. The **resistant starch** is used in the media at a concentration of 0.01-10% (w/w) and in the products at a concentration of 0.1-90% (w/w) total product. The **starch** is chemically modified (by oxidation, cross-bonding, etherification, esterification, acidification, or dextrinization), physically treated by heat-moisture treatment to enhance or increase the

resistant starch content, and/or enzymatically treated or modified. The modification of **starch** involves solvent extraction to remove fats and/or minerals from the **starch**. (I) is a probiotic, a starter culture, or a biocontrol or a bioremediation product.
Preferred Microbes: In (I) the microbe is a probiotic microorganism such as Saccharomyces, Bifidobacterium, Bacteroides, Clostridium, Fusobacterium, Propionibacterium, Streptococcus, Enterococcus,Lactococcus Staphylococcus, Peptostreptococcus or Lactobacillus, a starter culture consisting of lactic acid bacteria including Leuconostoc or yeast, or a biocontrol or bioremediation product consisting of Acidophilus, fungi, Bacillus, Pseudomonas or Alcaligenes. The microbes are resistant to stresses including aeration, sheer, freeze drying, freezing, drying including high, medium and low water activity, elevated temperatures, low temperatures, pressure and pressure fluctuations, low pH, high pH, bile acids, moisture, high osmolarity, low osmolarity, or high salt.
Preferred Product: (III) is a food product (fruit beverages, water ices, confectionery, coatings or covertures, yogurts, yogurt drinks, unfermented drinks, flavored milk drinks, modified milk drinks, ice-creams or dairy desserts), feed, nutraceutical, or pharmaceutical product (such as fluid-based food products including milk based products where the edible ingredient is one or more milk based ingredients including whole milk, milk solids, milk fat, cream, non-fat dried milk, solid based food products including snack bars, breakfast cereals, bread, confectionery, extruded food products, bars, buns, biscuits, feed pellets, and coated food products, water based fluids, cereal and plant based food products, tablets, food additives or health supplements), biocontrol or bioremediation product.

ABEX UPTX: 20000913

EXAMPLE - Bifidobacterium strain Lafti13B was pre-cultured in Basal broth (BM) supplemented with 1% w/v (weight/volume) glucose or high amylose maize starch granules. The cultures were inoculated onto BM agar or into broth, both media containing 1% (w/v) glucose. Plates were spot inoculated or spread and incubated. Growth in broth or cells harvested from spread plates were quantified by enumerating the colony forming units (CFU). Growth on spot-inoculated plates was quantified by measuring the size of the colony as well as the size of the cleared zone around the colony which was indicative of utilization of the starch by the Bifidobacterium cells. It was noted that Lafti13B grew more rapidly on starch-containing medium when pre-cultured using starch-containing medium and produced larger colonies and cleared zones on agar plates containing starch. The yield was greater from starch-containing media, compared to glucose media, for cells pre-cultured in both control broth (glucose) and starch broth and recovery of viable microorganisms after growth in the presence of starch was higher and more rapid than glucose controls. Growth in starch media also enhanced the yield of microorganism after exposure to stress conditions, e.g., low pH, bile acids, heat, moisture, pressure, freeze drying, and/or spray drying.

L109 ANSWER 6 OF 22 WPIX (C) 2003 THOMSON DERWENT
AN **2000-239189** [21] WPIX
DNC **C2000-072926**
TI Stable salad dressings which contain a cholesterol lowering amount of a sterol or stanol ester and which are stable at room temperatures and when refrigerated.
DC A97 D13 E13 E17
IN BRUCE, R D; BURRUANO, B T; DARTEY, C K; **HIGGINS, J D**
PA (MCNI) MCNEIL-PPC INC; (JOHJ) JOHNSON & JOHNSON
CYC 32
PI EP 986962 A1 20000322 (200021)* EN 11p A23L001-24
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI
NO 9904195 A 20000301 (200022) A23L001-24

AU 9944636 A 20000316 (200024) A23L001-035
JP 2000102361 A 20000411 (200029) 8p A23L001-24
CA 2281128 A1 20000229 (200033) EN A23L001-24
BR 9903979 A 20000905 (200048) A23L001-30
US 6123978 A 20000926 (200051) A23D009-007
MX 9908019 A1 20000901 (200139) A23L001-24
US 6399137 B1 20020604 (200242) A23D009-007

ADT EP 986962 A1 EP 1999-306841 19990827; NO 9904195 A NO 1999-4195 19990830; AU 9944636 A AU 1999-44636 19990820; JP 2000102361 A JP 1999-243164 19990830; CA 2281128 A1 CA 1999-2281128 19990830; BR 9903979 A BR 1999-3979 19990830; US 6123978 A US 1998-143817 19980831; MX 9908019 A1 MX 1999-8019 19990830; US 6399137 B1 Cont of US 1998-143817 19980831, US 2000-625667 20000726

FDT US 6399137 B1 Cont of US 6123978

PRAI US 1998-143817 19980831; US 2000-625667 20000726

IC ICM A23D009-007; A23L001-035; A23L001-24; A23L001-30
ICS A23L001-03; A23L001-29

AB EP 986962 A UPAB: 20000502
NOVELTY - Stable foodstuffs which contain:
(1) a cholesterol lowering amount of a sterol or stanol ester,
(2) an emulsifier or a hydrocolloid;
(3) a crystal fat inhibitor.
The foodstuffs, including salad dressings are stable even when refrigerated.
DETAILED DESCRIPTION - An INDEPENDENT CLAIM is made for a method of preparing the stable food emulsion comprising:
(1) providing an aqueous system;
(2) providing a food grade acceptable oil;
(3) providing a stanol ester;
(4) providing a crystal fat inhibitor and an emulsifier;
(5) admixing these ingredients;
(6) heating the mixture to 100 - 150 deg. F to form a heated oil; and
(7) adding the heated oil to the aqueous system.
USE - As a stable foodstuff which lowers cholesterol levels. An actual claimed EMBODIMENT is as a salad dressing.
ADVANTAGE - The foodstuff remains stable at different temperatures. It is stable both at room temperature and when refrigerated. This is useful for foodstuffs such as salad dressings that are sold at room temperature but which are refrigerated once opened.
Dwg.0/0

FS CPI

FA AB; DCN

MC CPI: A12-W09; D03-H01H; D03-H01N; D03-H01Q; D03-H01T2; E01; E07-A02A; E07-A02D; E10-E04G; E10-E04K

TECH UPTX: 20000502
TECHNOLOGY FOCUS - FOOD - Preferred Product: The food is a liquid. It contains from 0.5 to 1.5 grams of active sterol ester per serving.
Preferred Components: the emulsifier is a polyglycerol ester, a mono- or di-glyceride of a fatty acid, a propylene glycol ester, a sucrose fatty acid ester or a polyoxyethylene derivative of a sorbitan fatty acid ester. Specifically the emulsifier is a polysorbate 80 or polysorbate 60.
The hydrocolloid is a xanthan gum, propylene glycol alginate, a modified food **starch** or a cellulose derivative.
The crystal fat inhibitor is a polyglycerol ester of a fatty acid, a sorbitan ester of a fatty acid, a polysorbate made from the reaction product of a monoglyceride or sorbitan ester or an ethylene oxide.

ABEX UPTX: 20000502
EXAMPLE - No relevant example.

L109 ANSWER 7 OF 22 WPIX (C) 2003 THOMSON DERWENT

AN **2000-224165** [19] WPIX

DNC **C2000-068346**

TI Reducing atherosclerotic plaque comprises administration of fatty acid

composition.
DC B05 D13
IN KRITCHEVSKY, D
PA (WIST-N) WISTAR INST; (KRIT-I) KRITCHEVSKY D
CYC 84
PI WO 2000009118 A1 20000224 (200019)* EN 42p A61K031-20
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ UG ZW
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZW
AU 9955619 A 20000306 (200030) A61K031-20
US 2003008920 A1 20030109 (200311) A61K031-202 <--
US 6555579 B2 20030429 (200331) A61K031-20
ADT WO 2000009118 A1 WO 1999-US18505 19990812; AU 9955619 A AU 1999-55619 19990812; US 2003008920 A1 WO 1999-US18505 19990812, US 2001-673493 20010316; US 6555579 B2 Provisional US 1998-96352P 19980813, WO 1999-US18505 19990812, US 2001-673493 20010316
FDT AU 9955619 A Based on WO 200009118; US 6555579 B2 Based on WO 200009118
PRAI US 1998-96352P 19980813; US 2001-673493 20010316
IC ICM A61K031-20; **A61K031-202**
AB WO 200009118 A UPAB: 20000419
NOVELTY - Reducing atherosclerotic plaques comprises administration of at least one **polyunsaturated** fatty acid composition (A) comprising at least 16C atoms in length and with at least one pair of double bonds in a conjugated position.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for an article comprising, packaging material, the composition (A) and a label or package insert indicating that the composition is effective in reducing atherosclerotic plaques.

ACTIVITY - Antiarteriosclerotic.

Rabbits fed on a control diet had serum cholesterol levels of 505 mg/dl and atherosclerotic area (lumenal aortic surface) of 49%. When fed on the control diet with 1% w/w conjugated linoleic acid added, the figures were 430 and 30, showing decreases of 15 and 39% respectively. In rabbits with pre-existing atherosclerotic plaques, feeding them a regression diet (i.e. cholesterol-free) and also containing 1% w/w conjugated linoleic acid caused a 33% decrease in atherosclerotic area whereas the regression diet alone caused no decrease.

MECHANISM OF ACTION - None given.

USE - For reducing atherosclerotic plaques in an artery, especially an aortic, cerebral, coronary or carotid artery.

ADVANTAGE - Non-invasive methods of treating atherosclerosis are preferable to e.g. balloon angioplasty or surgical grafting of arteries or veins from elsewhere in the body.

Dwg.0/0
FS CPI
FA AB; DCN
MC CPI: B10-C04E; B14-E11; B14-F07; D03-H01T
TECH UPTX: 20000419
TECHNOLOGY FOCUS - PHARMACEUTICALS - Preferred composition: The amount of (A) is 0.01-5 (especially 0.5) wt.% of a total diet. The total diet comprises a low cholesterol or cholesterol-free diet. The carbon chain is 16-22 (especially 18)C atoms in length. The fatty acid comprises 9,11-octadecadienoic acid, 10,12-octadecadienoic acid or their geometric isomers, especially c9,t11-octadecadienoic acid or t10,c12-octadecadienoic acid), or a mixture of these acids in equal weight amounts. Alternatively, the fatty acid comprises at least three or four double bonds, in which at least two of them are conjugated.
The composition comprises a lipophilic entity. (A) is in the form of a monoglyceride, a diacylglyceride, free fatty acid, or fatty acid ethyl ester, and is in the form of a pharmaceutical composition or a fat or oil

containing foodstuff. The foodstuff comprises animal meat, ruminant animal meat, ruminant mammal milk, vegetable oil, vegetable **starch**, vegetable protein, vegetable fibre or an emulsified salad dressing.

ABEX UPTX: 20000419

SPECIFIC COMPOUNDS - (A) comprises c9,t11-octadecadienoic acid or t10,c12-octadecadienoic acid is claimed.

ADMINISTRATION - The dosage is 1-25000 (preferably 1000 mg)day or 1-25000 (preferably 50-10000) mg/week or 100-5000 mg every other day, or 1 g once a week. Administration is oral or parenteral.

L109 ANSWER 8 OF 22 WPIX (C) 2003 THOMSON DERWENT
AN **1999-492314** [41] WPIX
DNC **C1999-161123**
TI Preparation of water dispersible b-sitosterol or oryzanol useful as antihypercholesterolemic agents.
DC A97 B01 E13
IN BRUCE, R D; BURRUANO, B; **HIGGINS, J D**; HOY, M R
PA (MCNI) MCNEIL-PPC INC; (JOHJ) JOHNSON & JOHNSON
CYC 37
PI NO 9900747 A 19990820 (199941)* A61K009-10
CZ 9900547 A3 19990915 (199947) A61K009-10
EP 947197 A1 19991006 (199947)B EN 10p A61K031-575
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI
JP 11313644 A 19991116 (200005) 8p A23L001-48
CN 1232668 A 19991027 (200010) A61K031-56
US 6054144 A 20000425 (200027) A61K009-20
BR 9902325 A 20000411 (200031) A23D007-00
AU 9917358 A 20000608 (200035) A61K009-14
US 6110502 A 20000829 (200043) A61K009-00
KR 99072754 A 19990927 (200048) C07J075-00
NZ 334189 A 19990729 (200051) 19p A23D007-00
ZA 9901321 A 20001025 (200061) 19p C07J000-00
MX 9901663 A1 20000701 (200134) A61K035-78
HU 9900434 A1 20010628 (200143) A61K031-675
ADT NO 9900747 A NO 1999-747 19990218; CZ 9900547 A3 CZ 1999-547 19990218; EP 947197 A1 EP 1999-301209 19990218; JP 11313644 A JP 1999-36991 19990216; CN 1232668 A CN 1999-103000 19990219; US 6054144 A CIP of US 1998-25952 19980219, US 1998-185788 19981104; BR 9902325 A BR 1999-2325 19990218; AU 9917358 A AU 1999-17358 19990217; US 6110502 A US 1998-25952 19980219; KR 99072754 A KR 1999-5489 19990219; NZ 334189 A NZ 1999-334189 19990215; ZA 9901321 A ZA 1999-1321 19990218; MX 9901663 A1 MX 1999-1663 19990218; HU 9900434 A1 HU 1999-434 19990219
PRAI US 1998-185788 19981104; US 1998-25952 19980219
IC ICM A23D007-00; A23L001-48; A61K009-00; A61K009-10; A61K009-14; A61K009-20; A61K031-56; A61K031-575; A61K031-675; A61K035-78; C07J000-00; C07J075-00
ICS A23D007-015; A23L001-03; A23L001-30; A61K009-16; A61K009-50; A61K031-565; A61K047-00; C07C029-74; C07C035-44
AB EP 947197 A UPAB: 19991116 ABEQ treated as Basic
NOVELTY - Preparation of water-dispersible beta -sitosterol (I) or oryzanol (II) comprises adding mono- and polyfunctional surfactants to an aqueous stream, adding (I) or (II) to the mixture to form a suspension and drying to recover a water-dispersible (I) or (II). The process is performed without deaeration and homogenization steps. (N.B. The disclosure indicates that ' beta -sitosterol' includes its esters, stanol and its esters).

ACTIVITY - Antilipemic; antihypercholesterolemic.

MECHANISM OF ACTION - None given.

USE - (I) and (II) are useful as cholesterol-lowering agents. They may be provided in the form of tablets (claimed), chewable dosages, in the preparation of foods and beverages and may also be applied to prepared

foods and beverages.
ADVANTAGE - The water-dispersible form is more convenient to use and is thought to be more effective as a cholesterol-lowering agent.
Dwg.0/0

AB NO 9900747 A UPAB: 20001114
NOVELTY - Preparation of water-dispersible beta -sitosterol (I) or oryzanol (II) comprises adding mono- and polyfunctional surfactants to an aqueous stream, adding (I) or (II) to the mixture to form a suspension and drying to recover a water-dispersible (I) or (II). The process is performed without deaeration and homogenization steps. (N.B. The disclosure indicates that ' beta -sitosterol' includes its esters, stanol and its esters).
ACTIVITY - Antilipemic; antihypercholesterolemic.
MECHANISM OF ACTION - None given.
USE - (I) and (II) are useful as cholesterol-lowering agents. They may be provided in the form of tablets (claimed), chewable dosages, in the preparation of foods and beverages and may also be applied to prepared foods and beverages.
ADVANTAGE - The water-dispersible form is more convenient to use and is thought to be more effective as a cholesterol-lowering agent.
Dwg.0/0

FS CPI
FA AB; DCN
MC CPI: A12-W11J; B01-D02; B09-B; B14-D02A2; B14-F06; E01

ABEQ EP 947197 A UPAB: 19991116
NOVELTY - Preparation of water-dispersible beta -sitosterol (I) or oryzanol (II) comprises adding mono- and polyfunctional surfactants to an aqueous stream, adding (I) or (II) to the mixture to form a suspension and drying to recover a water-dispersible (I) or (II). The process is performed without deaeration and homogenization steps. (N.B. The disclosure indicates that ' beta -sitosterol' includes its esters, stanol and its esters).
ACTIVITY - Antilipemic; antihypercholesterolemic.
MECHANISM OF ACTION - None given.
USE - (I) and (II) are useful as cholesterol-lowering agents. They may be provided in the form of tablets (claimed), chewable dosages, in the preparation of foods and beverages and may also be applied to prepared foods and beverages.
ADVANTAGE - The water-dispersible form is more convenient to use and is thought to be more effective as a cholesterol-lowering agent.
Dwg.0/0

TECH UPTX: 20001114
TECHNOLOGY FOCUS - PHARMACEUTICALS - Preferred Process: The suspension has a turbidity of more than 2000 NTU. The monofunctional surfactant is used in amounts of 1-10 (preferably 2-2.5) wt.% and the polyfunctional surfactant in amounts of 0.5-10 (preferably 2-2.5) wt.%, especially in equal amounts by weight. The suspension is formed by using a high speed mixer. (I) or (II) are ground before formation of the suspension.

ABEX UPTX: 20001114
SPECIFIC COMPOUNDS - The monofunctional surfactant is polyoxyethylene sorbitan monopalmitate and the polyfunctional surfactant is sorbitan monooleate.

ADMINISTRATION - The obtained (I) or (II) is especially in the form of a single serving container providing 5-50 g of active ingredient (claimed). Tablets comprising the water-dispersible (I) or (II) are also claimed.

EXAMPLE - A beta-sitosterol formulation was prepared and spray-dried to give (on a dry basis) 1.98% Tween 40 (RTM; polyoxyethylene 20 sorbitan monopalmitate), 1.98% Span 80 (RTM; sorbitan monooleate), 15.82% Maltrin M100 (RTM; maltodextrin), 1.45% Aerosil 200 (RTM; silicon dioxide), 4.94% Starch N.F. and 73.83% beta-sitosterol. The turbidity of the resulting powder (100 g) dispersed in 25 ml water was 3155 NTU.

L109 ANSWER 9 OF 22 WPIX (C) 2003 THOMSON DERWENT
AN **1999-374070** [32] WPIX
CR 1996-508140 [51]
DNN **N1999-279299** DNC **C1999-110580**
TI Water disposable ostomy pouch, which disperses when disposed in a toilet.
DC A11 A23 A96 D22 P32 P34
IN **BROWN, M D**; MUNCASTER, B J
PA (ECOP-N) ECOPROGRESS LTD
CYC 1
PI GB 2333462 A 19990728 (199932)* 14p A61F005-44
GB 2333462 B 19991201 (199953) A61F005-44
ADT GB 2333462 A Derived from GB 1996-10947 19960524, GB 1999-6522 19990323;
GB 2333462 B Derived from GB 1996-10947 19960524, GB 1999-6522 19990323
PRAI GB 1996-1690 19960127; GB 1995-10596 19950525
IC ICM A61F005-44
ICS A61L025-00
AB GB 2333462 A UPAB: 19991215
NOVELTY - Water disposable enclosure (3) is made of gelatinized **starch** or polycaprolactone, which is soluble in a reagent, preferably N-methyl pyrrolidone or toluene. This is preferably within a pocket or sachet, which releases the reagent upon disposal, as parts of the enclosure shrink in water and tear the enclosure. Alternatively, the reagent can be applied by spray, wipe, or applicator pen.
USE - For an ostomy pouch (claimed).
ADVANTAGE - Material disperses for ease of flushing down a toilet (claimed), without the need for carrying acidic or alkaline substances.
DESCRIPTION OF DRAWING(S) - The figure shows a front view of the ostomy pouch.
pouch aperture rim 1
external patterning of pouch 2
pouch 3
Dwg.1/6
FS CPI GMPI
FA AB; GI
MC CPI: A03-A00A; A05-E02; A12-V03B; D09-C01; D09-C04

L109 ANSWER 10 OF 22 WPIX (C) 2003 THOMSON DERWENT
AN **1998-413678** [35] WPIX
CR 1998-427510 [36]; 2000-464322 [40]; 2001-615401 [57]
DNN **N1998-321998** DNC **C1998-124778**
TI Apparatus and method for producing swellable, uniformly shaped polymer body - used as implant device for tissue repair.
DC A11 A14 A28 A32 A96 B04 D22 P34
IN **BROWN, M K C**; SCHROEDER, J A; SHENOY, V N; YEUNG, J E
PA (COHE-N) COHESION TECHNOLOGIES INC
CYC 81
PI WO 9830252 A1 19980716 (199835)* EN 74p A61L027-00
RW: AT BE CH DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GM GW HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZW
AU 9860215 A 19980803 (199850) A61L027-00
ADT WO 9830252 A1 WO 1998-US530 19980108; AU 9860215 A AU 1998-60215 19980108
FDT AU 9860215 A Based on WO 9830252
PRAI US 1997-833874 19970410; US 1997-781012 19970109
IC ICM A61L027-00
ICS B29C047-70
AB WO 9830252 A UPAB: 20011206
Production of a dried, swellable , uniformly shaped polymer body comprises:(a) forming a viscous mixture comprising at least one polymer

and a liquid; (b) extruding the mixture through a mold die into a mold to form a polymer matrix, wherein the mold die has a central axis and at least 3 ribs extending in an outward direction from the central axis; and (c) drying the polymer matrix to form the dried, swellable, uniformly shaped polymer body. Also claimed is an apparatus for producing a dried, swellable , uniformly shaped polymer body form a viscous suspension or solution of a polymer which comprises: (a) a mold die which has a central axis and at least 3 ribs extending in an outward direction from the central axis; and (b) a mold; wherein the apparatus is adapted for extrusion of the viscous suspension or solution through the mold die into the mold. Also claimed is a dried, swellable , uniformly shaped polymer body made according to this method.

USE - The polymer body formed is useful as a preformed hard tissue implant which is both resorbable (i.e. replaced by ingrowth in tissues) and swellable and therefore as it swells after insertion it can anchor itself in place, eliminating the need for anchoring structures such as barbs, fins and wings. Also since the implant is dense when implanted and rendered less dense by degradation, it can initially provide adequate mechanical integrity while later serving as a scaffold for tissue ingrowth.The implants are placed within the hard tissue to increase its load bearing capacity, and/or to serve as a site for attachment of a second tissue. Also by combining the implants with other surgical devices such as sutures, screws, pins and rods, the effectiveness of the tissue repair can be greatly enhanced. The apparatus may be also be used to prepare polymer devices for non-medical applications. The implant may be used for e.g. repairs of the shoulder, endoscopic face lifts, collateral knee ligaments, cruciate knee ligaments, Achilles tendon, patellar tendon, hand or wrist.

Dwg.0/60

FS CPI GMPI
FA AB; DCN
MC CPI: A11-B07; A12-V02; B04-C03D; B04-N02; B11-C04A; D09-C01D

L109 ANSWER 11 OF 22 WPIX (C) 2003 THOMSON DERWENT
AN **1998-192669** [17] WPIX
DNC **C1998-061554**
TI Paper coating composition - comprises pigment, adhesive binder and rheology modifier which comprises guar and water-soluble polymer(s) from cellulose ethers, natural and modified **starches** and/or xanthan.
DC A18 A25 A82 F09 G02
IN **BROWN, M J**; YOUNG, T
PA (HERC) HERCULES INC
CYC 1
PI US 5725648 A 19980310 (199817)* 8p C09D007-12
ADT US 5725648 A US 1996-719375 19960925
PRAI US 1996-719375 19960925
IC ICM C09D007-12
ICS C09D105-00
AB US 5725648 A UPAB: 19980428
A paper coating composition (A) comprises a pigment, an adhesive binder and a rheology modifier which comprises guar and at least one other water-soluble polymer from cellulose ethers, natural and modified **starches** and/or xanthan.

Also claimed is a paper coating composition (B) comprising a pigment, an adhesive binder and a rheology modifier comprising reduced molecular weight guar.

USE - For coating paper to provide a smooth even surface for printing.

ADVANTAGE - The rheology modifier allows the coating to be easily pumped and perform suitably under high shear conditions of paper machines. The coating composition allows guar to be used as the rheology modifier. Paper coated with the composition has high porosity and desirable ink and fountain solution reception properties in printing operations. The

adsorption of the rheology modifier onto the pigment is reduced to improve the quality and printability of the coated paper when compared to the same paper coating composition except that the rheology modifier contains guar but no other water-soluble polymer (claimed).
Dwg.0/0
FS CPI
FA AB
MC CPI: A03-A00A; A03-A04; A03-C02; A08-M06; A12-B03A; A12-W07F; F05-A06B; G02-A05C

L109 ANSWER 12 OF 22 WPIX (C) 2003 THOMSON DERWENT
AN **1997-512539** [47] WPIX
DNN **N1997-426671** DNC **C1997-163595**
TI Improved spray bonded multi-ply tissue products - made by adhesive spraying one ply only and allowing partial drying of adhesive before nip bonding.
DC A81 D22 F09 P28 P72 P73
IN **BROWN, M**; LICHTENBERG, R B; TAYLOR, E C; TORRAS, J H
PA (LINC-N) LINCOLN PULP & PAPER CO INC; (EPUL-N) EASTERN PULP & PAPER CORP
CYC 21
PI WO 9737838 A1 19971016 (199747)* EN 41p B31F001-12
RW: AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE
W: AU CA FI
AU 9727224 A 19971029 (199810) B31F001-12
EP 892715 A1 19990127 (199909) EN B31F001-12
R: AT BE CH DE DK ES FI FR GB GR IE IT LI NL PT SE
AU 720306 B 20000525 (200034) B31F001-12
US 6136422 A 20001024 (200055) A47K010-16
ADT WO 9737838 A1 WO 1997-US5385 19970403; AU 9727224 A AU 1997-27224 19970403; EP 892715 A1 EP 1997-921088 19970403, WO 1997-US5385 19970403; AU 720306 B AU 1997-27224 19970403; US 6136422 A US 1996-628386 19960405
FDT AU 9727224 A Based on WO 9737838; EP 892715 A1 Based on WO 9737838; AU 720306 B Previous Publ. AU 9727224, Based on WO 9737838
PRAI US 1996-628386 19960405
REP US 4507163; US 4806183; US 5466318
IC ICM A47K010-16; B31F001-12
ICS B32B007-14
AB WO 9737838 A UPAB: 20001223
A multi-ply adhesively bonded tissue product has a continuous bonded region to within 0.75 inches of the core without any through bonding to give a medial bond strength of at least 400 mg/cm in said bonded region. Two webs(10,20) are unrolled with one web(10) sprayed with an adhesive before nipping(48) together of the two webs. The web path from spray point(60) to nip point(48) permits partial but not complete setting of the adhesive.
USE - As an adhesively bonded multi-ply tissue product.
ADVANTAGE - The improved efficiency and control of the spray bonding process provides a multi-ply tissue particularly suited for flexographic printing.
Dwg.1/7
FS CPI GMPI
FA AB; GI
MC CPI: A11-C01C; A12-V03A; D09-C04B; F05-A06A; F05-A06B

L109 ANSWER 13 OF 22 WPIX (C) 2003 THOMSON DERWENT
AN **1997-489330** [45] WPIX
DNN **N1997-407665** DNC **C1997-155894**
TI Encapsulation comprises applying solvent to two films to make them deformable - to encapsulate product and adhere to each other.
DC A32 A96 B07 D21 J04 P33
IN **BROWN, M D**
PA (BIOP-N) BIOPROGRESS TECHNOLOGY LTD; (BROW-I) BROWN M D
CYC 76

PI WO 9735537 A1 19971002 (199745)* EN 15p A61J003-07
RW: AT BE CH DE DK EA ES FI FR GB GH GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GH HU IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK TJ TM TR TT UA UG US UZ VN
AU 9721685 A 19971017 (199807)
ZA 9702638 A 19971231 (199807) 15p B29C000-00
NO 9804472 A 19980928 (199901) A61J000-00
EP 889710 A1 19990113 (199907) EN
R: DE DK ES FI FR GB GR IE IT NL SE
CZ 9803079 A3 19990217 (199913)
BR 9708352 A 20000104 (200019) A61J003-07
NZ 331840 A 20000327 (200022) A61J003-07
MX 9807863 A1 19990401 (200055) A61J003-07
AU 726280 B 20001102 (200062) A61J003-07
JP 2000515397 W 20001121 (200064) 18p A61J003-07
AU 2001018281 A 20010412 (200127)# A61J003-07
EP 889710 B1 20020227 (200215) EN A61J003-07
R: DE DK ES FI FR GB GR IE IT NL SE
US 2002026771 A1 20020307 (200221) B65B047-00
DE 69710710 E 20020404 (200230) A61J003-07
AU 2002027608 A 20020516 (200244)# A61J003-07
AU 751292 B 20020808 (200263)# A61J003-07
ES 2173434 T3 20021016 (200279) A61J003-07

ADT WO 9735537 A1 WO 1997-GB838 19970325; AU 9721685 A AU 1997-21685 19970325; ZA 9702638 A ZA 1997-2638 19970326; NO 9804472 A WO 1997-GB838 19970325, NO 1998-4472 19980925; EP 889710 A1 EP 1997-914438 19970325, WO 1997-GB838 19970325; CZ 9803079 A3 WO 1997-GB838 19970325, CZ 1998-3079 19970325; BR 9708352 A BR 1997-8352 19970325, WO 1997-GB838 19970325; NZ 331840 A NZ 1997-331840 19970325, WO 1997-GB838 19970325; MX 9807863 A1 MX 1998-7863 19980925; AU 726280 B AU 1997-21685 19970325; JP 2000515397 W JP 1997-534142 19970325, WO 1997-GB838 19970325; AU 2001018281 A Div ex AU 1997-21685 19970325, AU 2001-18281 20010202; EP 889710 B1 EP 1997-914438 19970325, WO 1997-GB838 19970325; US 2002026771 A1 WO 1997-GB838 19970325, US 1998-155257 19980924; DE 69710710 E DE 1997-610710 19970325, EP 1997-914438 19970325, WO 1997-GB838 19970325; AU 2002027608 A Div ex AU 2001-18281 20010202, AU 2002-27608 20020322; AU 751292 B Div ex AU 1997-21685 19970325, AU 2001-18281 20010202; ES 2173434 T3 EP 1997-914438 19970325

FDT AU 9721685 A Based on WO 9735537; EP 889710 A1 Based on WO 9735537; CZ 9803079 A3 Based on WO 9735537; BR 9708352 A Based on WO 9735537; NZ 331840 A Based on WO 9735537; AU 726280 B Previous Publ. AU 9721685, Based on WO 9735537; JP 2000515397 W Based on WO 9735537; AU 2001018281 A Div ex AU 726280; EP 889710 B1 Based on WO 9735537; DE 69710710 E Based on EP 889710, Based on WO 9735537; AU 751292 B Previous Publ. AU 200118281, Div ex AU 726280; ES 2173434 T3 Based on EP 889710

PRAI GB 1996-6371 19960326; AU 2001-18281 20010202; AU 2002-27608 20020322

REP GB 758642; US 2288327; US 4154636; WO 9104017

IC ICM A61J000-00; A61J003-07; B29C000-00; B65B047-00
ICS A61K009-50; B01J013-04; B01J013-12; B65B011-50

AB WO 9735537 A UPAB: 19971113
Two films (14, 16) have solvent applied (28, 30) to one surface to partially solvate the film which allows them to deform at an encapsulation station (28) to envelope a measured doses of a substance (from 36), and the films adhere to each other to seal about the substance.
Also claimed is the apparatus for performing the method, and a method as above in which the films are deformed into suitably shaped capsule portions prior to encapsulation and sealing.
USE - The encapsulation is useful particularly in forming water soluble and digestible capsules containing pharmaceutical or cosmetic preparations.

ADVANTAGE - The encapsulation provides a simple inexpensive method of forming capsules from a material which is not derived from animals and provides a substitute for gelatine.
Dwg.1/1

FS CPI GMPI
FA AB; GI; DCN
MC CPI: A11-B05; A12-V01; A12-V04; A12-W05; B04-C02A2; **B04-C02B**; B04-C02D; B04-C03B; B04-C03C; B04-C03D; B11-C05; B12-M11C; D08-B; J04-A06

L109 ANSWER 14 OF 22 WPIX (C) 2003 THOMSON DERWENT
AN **1997-489249** [45] WPIX
DNC **C1997-155849**
TI Enhancing a population of target microorganisms in gastrointestinal tract of animal - by providing the animal with modified or unmodified **resistant starch**, e.g. hydroxypropylated **starch**
.
DC A96 B04 D16
IN CONWAY, P L; HENRIKSSON, K A O; MCNAUGHT, K J; WANG, X; **BROWN, I L**; HENRIKSSON, K A
PA (ARNO-N) ARNOTT'S BISCUITS LTD; (BURN-N) BURNS PHILP & CO LTD; (BURN-N) BURNS PHILP RES & DEV PTY LTD; (CSIR) COMMONWEALTH SCI & IND RES ORG; (KONN) GIST-BROCADES AUSTRALIA PTY LTD; (GOOD-N) GOODMAN FIELDER INGREDIENTS LTD; (UYNE-N) UNIV NEW SOUTH WALES; (BROW-I) BROWN I L; (KINN) GIST-BROCADES AUSTRALIA PTY LTD
CYC 25
PI WO 9734592 A1 19970925 (199745)* EN 33p A61K031-175
RW: AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE
W: AU CA JP KR NZ SG US
AU 9720181 A 19971010 (199806) A61K031-175
EP 910359 A1 19990428 (199921) EN A61K031-175
R: AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
AU 705629 B 19990527 (199932) A61K031-175
NZ 331952 A 20000228 (200017) A61K031-78
JP 2001501583 W 20010206 (200111) 41p A61K031-718 <--
KR 2000064730 A 20001106 (200128) A61K031-70
US 6274567 B1 20010814 (200148) C12N001-20
US 2002198175 A1 20021226 (200304) A61K031-715
US 6528498 B2 20030304 (200320) A61K031-715
ADT WO 9734592 A1 WO 1997-AU175 19970320; AU 9720181 A AU 1997-20181 19970320; EP 910359 A1 EP 1997-908077 19970320, WO 1997-AU175 19970320; AU 705629 B AU 1997-20181 19970320; NZ 331952 A NZ 1997-331952 19970320, WO 1997-AU175 19970320; JP 2001501583 W JP 1997-532981 19970320, WO 1997-AU175 19970320; KR 2000064730 A WO 1997-AU175 19970320, KR 1998-707462 19980921; US 6274567 B1 WO 1997-AU175 19970320, US 1999-155115 19990510; US 2002198175 A1 Cont of WO 1997-AU175 19970320, Cont of US 1999-155115 19990510, US 2001-859540 20010518; US 6528498 B2 Cont of WO 1997-AU175 19970320, Cont of US 1999-155115 19990510, US 2001-859540 20010518
FDT AU 9720181 A Based on WO 9734592; EP 910359 A1 Based on WO 9734592; AU 705629 B Previous Publ. AU 9720181, Based on WO 9734592; NZ 331952 A Based on WO 9734592; JP 2001501583 W Based on WO 9734592; US 6274567 B1 Based on WO 9734592; US 2002198175 A1 Cont of US 6274567; US 6528498 B2 Cont of US 6274567
PRAI AU 1996-8809 19960320
REP 1.Jnl.Ref; AU 6721247; EP 659769; US 5147668; WO 9608261
IC ICM A61K031-175; A61K031-70; A61K031-715; **A61K031-718**; A61K031-78; C12N001-20
ICS A23L001-05; A23L001-0522; A61K035-78; A61K047-36; A61P001-14; C12N001-38
AB WO 9734592 A UPAB: 20030522
Enhancing a population of at least 1 target microorganisms in the gastrointestinal tract of an animal comprises providing to the animal a selected modified or unmodified **resistant starch** or

mixtures such that at least 1 microorganisms will selectively utilise the **starch** and/or increase in number and/or activity in the gastrointestinal tract.

The **resistant starch** is a high amylose (at least 50 wt/wt. %) **starch** from maize, barley, wheat, rice, legumes, bananas or potatoes. The **resistant starch** is modified chemically (preferably by etherification, esterification or acidification), enzymatically and /or physically (preferably by crystallisation). It may be hydroxypropylated **starch**, acetylated **starch**, octenyl succinated **starch**, carboxymethylated **starch** or succinated **starch**.

USE - Use of the **resistant starch** can provide for general gut microflora stabilisation and improve clinical conditions related to disturbances, e.g. flora-related irritable bowel syndrome and inflammatory bowel disease, Crohn's disease or diarrhoea, improve intestinal health e.g. of the epithelial mucosa; immunostimulating activities and protect from risks of colon cancer. In addition, **resistant starch** ingestion can cause a lowering of the pH which will lead to suppression of bacterial transformation of cholesterol and bile acids, thus affecting excretion of cholesterol and bile acids.

Dwg.0/9

FS CPI
FA AB; DCN
MC CPI: A03-A00A; A10-E01; A12-V01; **B04-C02B**; B14-E02; B14-E10; B14-G01; B14-H01; D05-A02C; D05-H04

L109 ANSWER 15 OF 22 WPIX (C) 2003 THOMSON DERWENT
AN **1997-479984** [44] WPIX
DNC **C1997-152432**
TI Probiotic composition comprising yeast and/or bacteria - in combination with a modified or unmodified **resistant starch** and an oligosaccharide.
DC A96 B04 D13
IN **BROWN, I L**; CONWAY, P L; TOPPING, D L; WANG, X
PA (ARNO-N) ARNOTT'S BISCUITS LTD; (BURN-N) BURNS PHILP & CO LTD; (BURN-N) BURNS PHILP RES & DEV PTY LTD; (CSIR) COMMONWEALTH SCI & IND RES ORG; (KONN) GIST-BROCADES AUSTRALIA PTY LTD; (GOOD-N) GOODMAN FIELDER INGREDIENTS LTD; (UYNE-N) UNIV NEW SOUTH WALES
CYC 25
PI WO 9734615 A1 19970925 (199744)* EN 19p A61K035-78
RW: AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE
W: AU CA JP KR NZ SG US
AU 9720182 A 19971010 (199806) A61K035-78
EP 888118 A1 19990107 (199906) EN A61K035-78
R: AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
AU 705095 B 19990513 (199930) A61K035-78
NZ 331950 A 20000228 (200017) A61K047-36
JP 2000506870 W 20000606 (200035) 21p A61K035-74
US 6221350 B1 20010424 (200125) A01N063-00
KR 2000064728 A 20001106 (200128) A61K035-78
ADT WO 9734615 A1 WO 1997-AU176 19970320; AU 9720182 A AU 1997-20182 19970320; EP 888118 A1 EP 1997-908078 19970320, WO 1997-AU176 19970320; AU 705095 B AU 1997-20182 19970320; NZ 331950 A NZ 1997-331950 19970320, WO 1997-AU176 19970320; JP 2000506870 W JP 1997-532982 19970320, WO 1997-AU176 19970320; US 6221350 B1 WO 1997-AU176 19970320, US 1999-155117 19990412; KR 2000064728 A WO 1997-AU176 19970320, KR 1998-707460 19980921
FDT AU 9720182 A Based on WO 9734615; EP 888118 A1 Based on WO 9734615; AU 705095 B Previous Publ. AU 9720182, Based on WO 9734615; NZ 331950 A Based on WO 9734615; JP 2000506870 W Based on WO 9734615; US 6221350 B1 Based on WO 9734615
PRAI AU 1996-8813 19960320
REP 2.Jnl.Ref; AU 6721247; JP 8310960; US 5147668; WO 9608261

IC ICM A01N063-00; A61K035-74; A61K035-78; A61K047-36
ICS A23L001-0522; A23L001-30; A61K031-715; A61K035-72; A61K047-26; A61P001-14
AB WO 9734615 A UPAB: 19981111
Probiotic composition comprises: (i) one or more probiotic microorganisms; (ii) a carrier to transport the microorganisms to the large bowel or other regions of the gastrointestinal tract of an animal; and (iii) an oligosaccharide. The carrier comprises a modified and/or unmodified **resistant starch**, which acts as a growth or maintenance medium for the microorganisms after administration.
USE - The composition is used to increase the number of probiotic or resident microorganisms in the gastro-intestinal tract of an animal (claimed). The composition may also result in extended persistence of higher numbers of microorganisms after cessation of dosage, thus the composition may also be useful in situations were a daily dose is not possible e.g. travelling.
Dwg.0/2
FS CPI
FA AB
MC CPI: A03-A00A; A10-E01; A12-V01; **B04-C02B**; B04-C02X; B04-F09; B04-F10; B14-E10; D03-H01T2

L109 ANSWER 16 OF 22 WPIX (C) 2003 THOMSON DERWENT
AN **1997-479972** [44] WPIX
DNC **C1997-152420**
TI Altering gastrointestinal tract microbial populations - by administration of probiotic bacteria with optionally modified **resistant starch** as carrier and growth medium, useful for preventing colorectal cancer.
DC A96 B04 D13 D16
IN **BROWN, I L**; CONWAY, P L; EVANS, A J; HENRIKSSON, K A O; MCNAUGHT, K J; WANG, X; HENRIKSSON, K A
PA (ARNO-N) ARNOTT'S BISCUITS LTD; (BURN-N) BURNS PHILP & CO LTD; (BURN-N) BURNS PHILP RES & DEV PTY LTD; (CSIR) COMMONWEALTH SCI & IND RES ORG; (KONN) GIST-BROCADES AUSTRALIA PTY LTD; (GOOD-N) GOODMAN FIELDER INGREDIENTS LTD; (UYNE-N) UNIV NEW SOUTH WALES
CYC 25
PI WO 9734591 A1 19970925 (199744)* EN 50p A61K031-175
RW: AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE
W: AU CA JP KR NZ SG US
AU 9720180 A 19971010 (199806)
EP 901371 A1 19990317 (199915) EN
R: AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
NZ 331951 A 20000228 (200017) A61K035-78
AU 722028 B 20000720 (200040) A61K031-175
JP 2001503016 W 20010306 (200116) 57p A61K035-74
KR 2000064729 A 20001106 (200128) A61K031-27
US 6348452 B1 20020219 (200221) A61K031-715
ADT WO 9734591 A1 WO 1997-AU174 19970320; AU 9720180 A AU 1997-20180 19970320; EP 901371 A1 EP 1997-908076 19970320, WO 1997-AU174 19970320; NZ 331951 A NZ 1997-331951 19970320, WO 1997-AU174 19970320; AU 722028 B AU 1997-20180 19970320; JP 2001503016 W JP 1997-532980 19970320, WO 1997-AU174 19970320; KR 2000064729 A WO 1997-AU174 19970320, KR 1998-707461 19980921; US 6348452 B1 WO 1997-AU174 19970320, US 1999-155116 19990129
FDT AU 9720180 A Based on WO 9734591; EP 901371 A1 Based on WO 9734591; NZ 331951 A Based on WO 9734591; AU 722028 B Previous Publ. AU 9720180, Based on WO 9734591; JP 2001503016 W Based on WO 9734591; US 6348452 B1 Based on WO 9734591
PRAI AU 1996-8814 19960320; AU 1996-8810 19960320; AU 1996-8811 19960320; AU 1996-8812 19960320
REP 2.Jnl.Ref; AU 6721247; EP 659769; JP 8310960; US 5147668; WO 9608261
IC ICM A61K031-175; A61K031-27; A61K031-715; A61K035-74; A61K035-78
ICS A23L001-0522; A61K031-19; **A61K031-718**; A61K047-36;

A61P001-00

AB WO 9734591 A UPAB: 19981111

Methods are claimed for (i) enhancing a resident microorganisms (MO) population in a selected site of the gastrointestinal (GI) tract (specifically in the small intestine, stomach or large bowel), (ii) suppressing an undesired resident MO population (specifically of a microbial pathogen) in a selected site of the GI tract or (iii) reducing the incidence of colorectal cancer or colonic atrophy. The methods all involve administration of a combination (I) of (A) at least one optionally modified **resistant starch** and (B) one or more probiotic MO's. In (i) and (ii) (A) passes through the GI tract unutilised until it reaches the selected site where it is utilised by (i) the resident MO's and/or (B) to cause an increase in the MO number and/or activity or (ii) another resident MO and/or (B), to cause an increase in the number and/or activity of the other MO's and to suppress the growth and/or activity of the undesired MO. In (iii) (B) produce short chain fatty acids (SFA); and (A) functions as a carrier to transport (B) to the large bowel (or other regions of the GI tract) and as a growth or maintenance medium for MO's in this region to enhance SCFA production by (B) and/or resident MO's.

Also claimed are: a probiotic composition (I') comprising (A) and (B), where (A) acts as a carrier to which (B) are bound in such a manner as to be protected during passage to the large bowel (or other GI tract regions) and also as a growth or maintenance medium for MO's in this region; and a method for providing (B) to the GI tract by administration of (I).

USE - (I)/(I') is useful for altering or influencing the MO population of the GI tract of animals, including humans. Typical applications are: reducing the incidence of colorectal cancer or colonic atrophy as in (iii); promotion of growth of (B) and/or desirable indigenous MO's in the small intestine where indigenous MO levels are lower and pathogens frequently establish (e.g. Helicobacter pylori in the stomach or enterotoxigenic Escherichia coli in the small intestine); combatting diseases such as constipation, irritable bowel syndrome, ulcerative colitis, inflammatory bowel disease, Crohn's disease, gastric or duodenal ulcers and cancer; treatment or prevention of infective diarrhoea (e.g. caused by bacteria, viruses or protozoa, including infantile diarrhoea, antibiotic-associated diarrhoea and traveller's diarrhoea); and reduction of chlolesterol levels.

ADVANTAGE - (A) can protect and adhere to (B), carry and deliver (B) economically and efficiently to specific sites (without significantly affecting populations at other sites) and promote MO growth in the large intestine.

Dwg.15/15

FS CPI

FA AB; GI; DCN

MC CPI: A03-A00A; A12-V01; B03-L; B04-B01C1; **B04-C02B**; B04-D01; B04-F10B; B04-N02; B07-A02B; B10-B02D; B14-E10; D03-H

L109 ANSWER 17 OF 22 WPIX (C) 2003 THOMSON DERWENT

AN **1996-371901** [38] WPIX

DNC **C1996-118102**

TI Enteral product contg n-3-fatty acid or deriv and medium chain length tri glyceride - for improving glucose tolerance, insulin **resistance** and hyperlipidaemia, also treatment of gastrointestinal and skin disease.

DC B05 D13

IN DESAGA, J F

PA (DESA-I) DESAGA J F

CYC 1

PI DE 19503993 A1 19960814 (199638)* 4p A61K031-20

ADT DE 19503993 A1 DE 1995-19503993 19950208

PRAI DE 1995-19503993 19950208

IC ICM A61K031-20

ICS **A23L001-09**; A61K031-23; A61K047-36

AB DE 19503993 A UPAB: 19960924
Medicament contg. nutrients or pharmaceuticals, for enteral admin. to improve glucose tolerance, insulin **resistance** or hyperlipidaemia in cases of obesity, metabolic syndrome or diabetes mellitus, or to treat and prevent gastrointestinal diseases or skin diseases (e.g. psoriasis) or similar diseases comprises a n-3-fatty acid (I), or a (I)-contg. cpd., and a medium chain length triglyceride (II), (I) and (II) both being at least 5% of the product.
USE - The product, opt. mixed with an isocaloric or low-calorie food, is used to reduce insulin demand, increase insulin sensitivity and normalise glucose and fat levels in the blood in subjects with type I or II diabetes or diabetes of sec. origin, or those with related disorders.
ADVANTAGE - The product can reduce, or eliminate, the need for oral antidiabetic agents. Acceptance and tolerance can be improved, and resorption delayed, by masking or encapsulating the product.
Dwg.0/0

FS CPI

FA AB; DCN

MC CPI: **B04-B01B**; B05-B01P; B10-C04E; B10-G02; B14-E10; B14-N17C; **B14-S04**; **D03-H01T3**

L109 ANSWER 18 OF 22 WPIX (C) 2003 THOMSON DERWENT

AN **1996-179716** [18] WPIX

DNC **C1996-056672**

TI Compsns. contg. pro-biotic microorganisms and **resistant starch** carrier - can be ingested directly or used as components of foods or beverages, e.g. dairy prods., bakery prods., ice cream, confectionery, spreads, cereals or juices.

DC B04 D13 D16

IN **BROWN, I L**; CONWAY, P L; EVANS, A J; GANLY, R N; MCNAUGHT, K J; TOPPING, D L; WANG, X; GANLY, R G

PA (ARNO-N) ARNOTT'S BISCUITS LTD; (BURN-N) BURNS PHILP & CO LTD; (BURN-N) BURNS PHILP RES & DEV PTY LTD; (CSIR) COMMONWEALTH SCI & IND RES ORG; (KONN) GIST-BROCADES AUSTRALIA PTY LTD; (GOOD-N) GOODMAN FIELDER INGREDIENTS LTD; (GOOD-N) GOODMAN FIELDER LTD; (UYNE-N) UNIV NEW SOUTH WALES; (MAUR-N) MAURI LAB PTY LTD; (BURN-N) BURNS PHILP & CO LTD

CYC 24

PI

WO 9608261	A1	19960321	(199618)*	EN	38p	A61K035-66
RW: AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE						
W: AU CA JP KR NZ SG US						
AU 9535579	A	19960329	(199628)			A61K035-66
EP 778778	A1	19970618	(199729)	EN		A61K035-66
R: AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE						
JP 10500142	W	19980106	(199811)		42p	A61K035-74
AU 687253	B	19980219	(199824)			A61K035-66
KR 97706010	A	19971103	(199844)			A61K035-66
NZ 293195	A	19990128	(199910)			A61K035-66
JP 3037435	B2	20000424	(200025)		19p	A61K035-74
US 6060050	A	20000509	(200030)			A01N063-00
CA 2199140	C	20011113	(200175)	EN		C12N001-20
KR 282925	B	20010402	(200216)			A61K035-66
EP 778778	B1	20020320	(200221)	EN		A61K035-66
R: AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE						
DE 69525947	E	20020425	(200235)			A61K035-66
ES 2176338	T3	20021201	(200305)			A61K035-66

ADT WO 9608261 A1 WO 1995-AU613 19950918; AU 9535579 A AU 1995-35579 19950918; EP 778778 A1 EP 1995-932570 19950918, WO 1995-AU613 19950918; JP 10500142 W WO 1995-AU613 19950918, JP 1996-509769 19950918; AU 687253 B AU 1995-35579 19950918; KR 97706010 A WO 1995-AU613 19950918, KR 1997-701668 19970314; NZ 293195 A NZ 1995-293195 19950918, WO 1995-AU613 19950918; JP 3037435 B2 WO 1995-AU613 19950918, JP 1996-509769 19950918; US 6060050 A WO 1995-AU613 19950918, US 1997-793892 19970617; CA 2199140 C CA

1995-2199140 19950918, WO 1995-AU613 19950918; KR 282925 B WO 1995-AU613 19950918, KR 1997-701668 19970314; EP 778778 B1 EP 1995-932570 19950918, WO 1995-AU613 19950918; DE 69525947 E DE 1995-625947 19950918, EP 1995-932570 19950918, WO 1995-AU613 19950918; ES 2176338 T3 EP 1995-932570 19950918

FDT AU 9535579 A Based on WO 9608261; EP 778778 A1 Based on WO 9608261; JP 10500142 W Based on WO 9608261; AU 687253 B Previous Publ. AU 9535579, Based on WO 9608261; KR 97706010 A Based on WO 9608261; NZ 293195 A Based on WO 9608261; JP 3037435 B2 Previous Publ. JP 10500142, Based on WO 9608261; US 6060050 A Based on WO 9608261; CA 2199140 C Based on WO 9608261; KR 282925 B Previous Publ. KR 97706010, Based on WO 9608261; EP 778778 B1 Based on WO 9608261; DE 69525947 E Based on EP 778778, Based on WO 9608261; ES 2176338 T3 Based on EP 778778

PRAI AU 1994-8230 19940916

REP EP 203586; EP 287699; WO 8602837

IC ICM A01N063-00; A61K035-66; A61K035-74; C12N001-20
ICS A23L001-0522; A23L001-30; A61K035-72; A61K047-00; A61K047-36; A61P003-02; C12N001-00; C12N001-16; C12N011-04

ICA A23L001-05; C12N011-10

AB WO 9608261 A UPAB: 19981111
Opt. 2 part probiotic compsn. contg. at least 1 probiotic microorganism and a carrier which comprises at least 1 opt. modified **resistant starch** (RS) and acts as a growth or maintenance medium for microorganisms in the large bowel or other regions of the gastrointestinal tract, are new.

Also claimed are: (a) a food compsn. including a probiotic compsn. as above, and (b) a method of forming a probiotic compsn. which comprises drying, blending, co-extruding, spray cooling, entrapment, adhesion or micro-encapsulating one or more probiotic microorganisms with an opt. modified RS.

USE - The compsns. can be ingested directly or used as components of foods or beverages, e.g. dairy prods., bakery prods., ice-cream, confectionery, edible oil compsns., spreads, breakfast cereals or juices.

ADVANTAGE - The RS transports the probiotic microorganisms to the colon or other regions of the gastrointestinal tract and also serves as a growth or maintenance medium for the microflora of the colon.

Dwg.0/10

FS CPI

FA AB; DCN

MC CPI: **B04-C02B**; B04-F10; B14-E11; D03-B; D03-C; D03-E; D03-H01G; D05-H10

L109 ANSWER 19 OF 22 WPIX (C) 2003 THOMSON DERWENT

AN **1994-234251** [28] WPIX

DNC **C1994-106488**

TI Food compsns. enhanced dietary fibre content obtd. from **starch** - are resistant to digestion and are esp. bread, breakfast cereal or noodles.

DC D13

IN **BROWN, I L**; GANLY, R; MCNAUGHT, K J

PA (GOOD-N) GOODMAN FIELDER LTD; (PENF-N) PENFORD HOLDINGS PTY LTD

CYC 24

PI WO 9414342 A1 19940707 (199428)* EN 22p A23L001-308
RW: AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE
W: AU CA JP KR NZ US
AU 9458059 A 19940719 (199439) A23L001-308
AU 657443 B 19950309 (199520) A23L001-308
EP 675690 A1 19951011 (199545) EN A23L001-308
R: AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE
NZ 259291 A 19960126 (199610) A23L001-308
JP 08504583 W 19960521 (199646) 24p A23L001-308
EP 675690 A4 19970226 (199728) A23L001-308
SG 71659 A1 20000418 (200027) A23L001-308

US 6303174 B1 20011016 (200164) A01H005-10
JP 3249125 B2 20020121 (200207) 8p A23L001-308
US 2002054948 A1 20020509 (200235) A23L001-18
CA 2147117 C 20020820 (200263) EN A23L001-308
US 6451367 B1 20020917 (200264) A01H005-10

ADT WO 9414342 A1 WO 1993-AU684 19931224; AU 9458059 A AU 1994-58059 19931224; AU 657443 B AU 1994-58059 19931224; EP 675690 A1 WO 1993-AU684 19931224, EP 1994-903702 19931224; NZ 259291 A NZ 1993-259291 19931224; JP 08504583 W WO 1993-AU684 19931224, JP 1994-514615 19931224; EP 675690 A4 EP 1994-903702 ; SG 71659 A1 SG 1996-3595 19931224; US 6303174 B1 WO 1993-AU684 19931224, US 1995-448582 19950803; JP 3249125 B2 WO 1993-AU684 19931224, JP 1994-514615 19931224; US 2002054948 A1 Cont of US 1995-448582 19950803, US 2001-977174 20011012; CA 2147117 C CA 1993-2147117 19931224, WO 1993-AU684 19931224; US 6451367 B1 Cont of WO 1993-AU684 19931224, Cont of US 1995-448582 19950803, US 2001-977174 20011012

FDT AU 9458059 A Based on WO 9414342; AU 657443 B Previous Publ. AU 9458059, Based on WO 9414342; EP 675690 A1 Based on WO 9414342; JP 08504583 W Based on WO 9414342; US 6303174 B1 Based on WO 9414342; JP 3249125 B2 Previous Publ. JP 08504583, Based on WO 9414342; US 2002054948 A1 Cont of US 6303174; CA 2147117 C Based on WO 9414342; US 6451367 B1 Cont of US 6303174

PRAI AU 1992-6537 19921224

REP 01Jnl.Ref; AU 8945616; AU 9060630; AU 9061403; AU 9225124; FR 2518372; 3.Jnl.Ref; CA 2016950; EP 360046; EP 512249; JP 04063560; JP 04063564; US 3541587; US 4590084; WO 9015147; WO 9403049

IC ICM A01H005-10; A23L001-18; A23L001-308
ICS A21D002-36; A23L001-0522; A23L001-10; A23L001-16; A23L001-164; C08B030-00

AB WO 9414342 A UPAB: 19940831
Food compsns. have enhanced dietary fibre content. The fibre is derived from a **starch** of amylose content at least 50%, or if a rice **starch**, at least 27% and/or from a grain or its parts having **starch** content as above.

The **starch** contains over 55 (pref. over 70) (pref. over 80) (pref. over 85) (esp. over 90)%. amylose. It is a wheat, maize, barley, pea and/or rice **starch**, and the grains are the same esp. maize **starch** and/or maize. The **starch** and/or grain are at 5-60% giving a dietary fibre content of 1.5-22%.

Noodles contain upto 20% of the **starch**. Bread contains 5-25% of the **starch**, esp. is gluten-free and contains upto 15% of the **starch**. Breakfast cereal of the invention, esp. flaked cereal or extruded flakes, is bubbles, popped or blistered in appearance. The dietary fibre content of the food is at least 4.5, (pref. 12.4) (partic 15.3)%. Moist dietary fibre content of the food is at least 4.5, (pref. 12.4) (partic. 15.3)%. Moist pellets formed during the flakes formation are tempered overnight to give a dietary fibre content over 17.5(20.7)%. Cereals are in pellet form.

USE/ADVANTAGE - Compsns. are breakfast cereals, bread, noodles (all claimed), etc.. The **starches** are resistant to digestion and act as dietary fibre.

Dwg.0/1

FS CPI
FA AB
MC CPI: D03-H01T1

L109 ANSWER 20 OF 22 WPIX (C) 2003 THOMSON DERWENT
AN **1994-065282** [08] WPIX
DNN **N1994-051191** DNC **C1994-029226**
TI New hybrid maize seeds - capable of producing **starch** having an amylose content of more than 80%.
DC D13 D17 P13
IN **BROWN, I L**; KNIGHT, A T; MCNAUGHT, K J; MOLONEY, E; MALONEY, E; MCNAUGHT, K; KNIGHT, T A

PA (GOOD-N) GOODMAN FIELDER LTD; (PENF-N) PENFORD HOLDINGS PTY LTD; (GOOD-N) GOODMAN FIELDER INGREDIENTS LTD
CYC 22
PI WO 9403049 A1 19940217 (199408)* EN 27p A01H005-10
RW: AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE
W: AU CA JP NZ US
AU 9345520 A 19940303 (199426) A01H005-10
EP 652701 A1 19950517 (199524) EN A01H005-10
R: AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE
AU 660560 B 19950629 (199533) A01H005-10
JP 08503123 W 19960409 (199645) 29p A01H005-00
NZ 254014 A 19971124 (199802) A01H005-10
NZ 328867 A 19980126 (199810) A01H005-10
US 5714600 A 19980203 (199812) 10p A01H005-10
EP 885556 A2 19981223 (199904) EN A01H005-10
R: AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE
US 5977454 A 19991102 (199953) A01H003-00
EP 652701 B1 20020109 (200211) EN A01H005-10
R: AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE
DE 69331439 E 20020214 (200220) A01H005-10
US 6409840 B1 20020625 (200246) A01H005-10
EP 885556 B1 20020918 (200269) EN A01H005-10
R: AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE
ES 2171413 T3 20020916 (200270) A01H005-10
DE 69332316 E 20021024 (200278) A01H005-10
ES 2184197 T3 20030401 (200328) A01H005-10
ADT WO 9403049 A1 WO 1993-AU389 19930730; AU 9345520 A AU 1993-45520 19930730; EP 652701 A1 EP 1993-915566 19930730, WO 1993-AU389 19930730; AU 660560 B AU 1993-45520 19930730; JP 08503123 W WO 1993-AU389 19930730, JP 1994-504825 19930730; NZ 254014 A NZ 1993-254014 19930730, WO 1993-AU389 19930730; NZ 328867 A Div ex NZ 1993-254014 19930730, NZ 1993-328867 19930730; US 5714600 A WO 1993-AU389 19930730, US 1995-374645 19950427; EP 885556 A2 Div ex EP 1993-915566 19930730, EP 1998-202909 19930730; US 5977454 A Div ex WO 1993-AU389 19930730, Div ex US 1995-374645 19950427, US 1997-815763 19970312; EP 652701 B1 EP 1993-915566 19930730, WO 1993-AU389 19930730, Related to EP 1998-202909 19930730; DE 69331439 E DE 1993-631439 19930730, EP 1993-915566 19930730, WO 1993-AU389 19930730; US 6409840 B1 Div ex WO 1993-AU389 19930730, Div ex US 1995-374645 19950427, US 1997-967826 19971112; EP 885556 B1 Div ex EP 1993-915566 19930730, EP 1998-202909 19930730; ES 2171413 T3 EP 1993-915566 19930730; DE 69332316 E DE 1993-632316 19930730, EP 1998-202909 19930730; ES 2184197 T3 EP 1998-202909 19930730
FDT AU 9345520 A Based on WO 9403049; EP 652701 A1 Based on WO 9403049; AU 660560 B Previous Publ. AU 9345520, Based on WO 9403049; JP 08503123 W Based on WO 9403049; NZ 254014 A Based on WO 9403049; NZ 328867 A Div ex NZ 254014; US 5714600 A Based on WO 9403049; EP 885556 A2 Div ex EP 652701; US 5977454 A Div ex US 5714600; EP 652701 B1 Related to EP 885556, Based on WO 9403049; DE 69331439 E Based on EP 652701, Based on WO 9403049; US 6409840 B1 Div ex US 5714600; EP 885556 B1 Div ex EP 652701; ES 2171413 T3 Based on EP 652701; DE 69332316 E Based on EP 885556; ES 2184197 T3 Based on EP 885556
PRAI AU 1993-7266 19930212; AU 1992-3894 19920731
REP 01Jnl.Ref; AU 8945616
IC ICM A01H003-00; A01H005-00; A01H005-10
ICS A01H004-00; A23L001-0522; A23L001-10; A23L001-308; C08B030-00; C08B030-20; C12N015-29
AB WO 9403049 A UPAB: 20020823
A hybrid maize seed capable of producing a **starch** having an amylose content of more than 80% is claimed.

Also claimed are: (1) a maize **starch** having an amylose content of more than 80% and (2) a **starch** fraction of enhanced dietary fibre and/or **resistant starch** content comprising a high amylose **starch**, the amylose content of which

is 50% or more, which has been fractionated according to granule size to yield a fraction which is characterised by a dietary fibre and/or **resistant starch** content which is greater than that of the high amylose **starch**.

USE/ADVANTAGE - The high amylose maize **starch** can be used for e.g. corrugating adhesives, sausage skins, confectionary, films, biodegradable and controlled release matrices, shaped articles or blends with other polymers. The **starch** fractions can be used to provide food compsns. with enhanced dietary fibre and/or **resistant starch** content. The high amylose maize **starch** can be used to produce films which have higher tensile strengths and which are good oxygen barriers. The **starch** is also easier to process on existing synthetic plastics materials equipment such as injection and blow moulding machines.

Dwg.0/4

FS CPI GMPI
FA AB
MC CPI: D03-E02; D03-H01T1; D06-H01
ABEQ US 5714600 A UPAB: 19980323

A hybrid maize seed capable of producing a **starch** having an amylose content of more than 80% is claimed.

Also claimed are: (1) a maize **starch** having an amylose content of more than 80% and (2) a **starch** fraction of enhanced dietary fibre and/or **resistant starch** content comprising a high amylose **starch**, the amylose content of which is 50% or more, which has been fractionated according to granule size to yield a fraction which is characterised by a dietary fibre and/or **resistant starch** content which is greater than that of the high amylose **starch**.

USE/ADVANTAGE - The high amylose maize **starch** can be used for e.g. corrugating adhesives, sausage skins, confectionary, films, biodegradable and controlled release matrices, shaped articles or blends with other polymers. The **starch** fractions can be used to provide food compsns. with enhanced dietary fibre and/or **resistant starch** content. The high amylose maize **starch** can be used to produce films which have higher tensile strengths and which are good oxygen barriers. The **starch** is also easier to process on existing synthetic plastics materials equipment such as injection and blow moulding machines.

Dwg.0/4

L109 ANSWER 21 OF 22 WPIX (C) 2003 THOMSON DERWENT
AN **1991-200887** [28] WPIX
DNC **C1991-086982**
TI **Starch** with amylose extender waxy genotype - e.g. from maize, useful as thickener etc. in food prods..
DC D13
IN **BROWN, I L**; DUNN, C; MCWHIRTER, K
PA (GOOD-N) GOODMAN FIELDER WAT
CYC 1
PI AU 9051392 A 19910523 (199128)*
ADT AU 9051392 A AU 1989-51392 19891120
PRAI AU 1989-7492 19891120; AU 1989-51392 19891120; AU 1990-51392 19900316
IC A23L001-05; C08B030-20
AB AU 9051392 A UPAB: 19930928

A new substantially pure **starch** extracted from a **starch** bearing plant, esp. maize, has an amylose extender (''ae'') waxy (''wx'') genotype.

Pref. maize kernels with an amylose extender (''ae'') waxy (''wx'') genotype are wet milled by steeping the maize kernels, grinding the steeped maize and sepg. the **starch** from the ground maize kernels. The **starch** may be formed into a sol by mixing the

starch with water and cooking the mixt. to form a thickened sol, esp. where the **starch** content of the sol is 1-20wt.%.

USE/ADVANTAGE - The new **starches** are extracted e.g., from ''ae wx'' maize kernels and have a number of advantageous properties: (1) high cold water absorption capacity and high cold water viscosity, (2) slow rate at which the cooked **starch** sets to a gel, (3) clean neutral flavour unlike those normally associated with regular maize **starch** or waxy maize **starch**, (4) advantageous film forming properties, (5) resistance to enzymatic hydrolysis and (6) susceptibility to heat moisture treatment. The prods. are esp. useful as thickeners, etc. in the food industry, e.g., for prepg. batters, film-forming prods. and extruded prods..

0/2

FS CPI
FA AB
MC CPI: D01-B02F; D03-H01J; D06-H01

L109 ANSWER 22 OF 22 WPIX (C) 2003 THOMSON DERWENT
AN **1982-24525E** [13] WPIX
TI Food compsn. contg. slowly assimilated glucide(s) and food fibres - for use in diabetes and metabolism troubles, and contg. mono glyceride as **starch** chain complexing agent to control digestion.
DC B05 D13
IN COMBEAUX, D; PARRIER, J L
PA (HYGI-N) HYGIENE NUTRITIONNE; (HYGI-N) SOC HYGIENE NUTRITI
CYC 2
PI FR 2488784 A 19820226 (198213)* 20p
DE 3132601 A 19820527 (198222)
PRAI FR 1980-18141 19800819; FR 1981-24106 19811223
IC A21D013-04; **A23L001-30**; A61K031-21; A61K035-78; C07C069-00
AB FR 2488784 A UPAB: 19930915
Food compsn, contg. slowly assimilated glucides and food fibres, which contains a monoglycoide as **starch** chain complexing agent is new.
Pref. the compsn. contains 0.2-3 wt.%, esp. 0.3-2 wt.%, of complexing agent.

Pref. compsns. contain:- (a)50-70 pts.wt. slowly assimilated gluicdes, pref. those contg. 65-70 wt.% amylose e.g. maize, rice, sorghum, etc. (b) 20-40 pts.wt. textured food fibres, partially non-assimilable by the user, esp. cellulose or hemi-cellulose fibres; (c) 5-10 pts.wt. amorphous, partially non-assimilable substance, esp. pectins, natural gums or their mixts.; (d) 1-6 pts.wt. wheat germ; (e) 1-5pts.wt vegetable fat, esp. **unsatd**. triglycerides; (f) 0.5-1.5 pts.wt. salt; and (g) 0.5-1.5 pts.wt. **starch** chain complexing agent.

Used as a food compsn. used to treat glucidie metabolism troubles, esp. diabetes. Compsns. contg. slowly assimilated glucides and food fibres are described in FR2431862; the present invention improves these compsns. by addn. of a monoglyceride as complexing agent for the **starch** chains. The monoglyceride potentialises the retarded assimilation and helps avoid hyper- and hypo-glycemic states, in addition to improving the stability of the food to the physical and thermal processes used in its prepn.

FS CPI
FA AB
MC CPI: B04-A07D; **B04-B01B**; B04-C02; B10-G02; **B12-H05**; B12-J01; D01-B02

=> fil frosti
FILE 'FROSTI' ENTERED AT 15:58:24 ON 25 MAY 2003

FILE LAST UPDATED: 21 MAY 2003 <20030521/UP>
FILE COVERS 1972 TO DATE.

=> d all tot

L131 ANSWER 1 OF 2 FROSTI COPYRIGHT 2003 LFRA
AN **601892** FROSTI
TI Starch sub-types and lipid metabolism.
IN Brown I.L.; Storlien L.H.; Brown M.A.; Higgins J.; Tapsell L.C.
PA Penford Australia Ltd
SO European Patent Application
PI EP 1267642 A1
WO 2001076394 20011018
AI 20010406
PRAI Australia 20000406
DT Patent
LA English
SL English
AB A method is given for regulating carbohydrate and fat metabolism in an individual by replacing part of the daily carbohydrate intake with **resistant starch** and part of the daily fat intake with **unsaturated** fat. This can reduce postprandial plasma glucose concentrations after meal intake, lower plasma insulin levels and plasma leptin concentrations and increase satiety. Applications include the control and treatment of obesity, overweight, diabetes mellitus, hypertension and coronary heart disease.
SH FUNCTIONAL FOODS
CT ANTIDIABETIC FOODS; BLOOD SUGAR; EUROPEAN PATENT; **FATS**; FUNCTIONAL FOODS; HEALTH FOODS; PATENT; POLYSACCHARIDES; **RESISTANT STARCH**; SLIMMING AIDS; SLIMMING PRODUCTS; STARCH; **UNSATURATED FATS**
DED 4 Feb 2003

L131 ANSWER 2 OF 2 FROSTI COPYRIGHT 2003 LFRA
AN **568655** FROSTI
TI Starch sub-types and lipid metabolism.
IN Brown I.L.; Storlien L.H.; Brown M.A.; Higgins J.; Tapsell L.C.
PA Penford Australia Ltd
SO PCT Patent Application
PI WO 2001076394 A1 20011018
AI 20010406
PRAI Australia 20000406
NTE 20011018
DT Patent
LA English
SL English
AB A method is given for regulating carbohydrate and fat metabolism in an individual by replacing part of the daily carbohydrate intake with **resistant starch** and part of the daily fat intake with **unsaturated** fat. This can reduce postprandial plasma glucose concentrations after meal intake, lower plasma insulin levels and plasma leptin concentrations and increase satiety. Applications include the control and treatment of obesity, overweight, diabetes mellitus, hypertension and coronary heart disease.
SH FUNCTIONAL FOODS
CT ANTIDIABETIC FOODS; BLOOD SUGAR; FUNCTIONAL FOODS; HEALTH FOODS; PATENT; PCT PATENT; **RESISTANT STARCH**; SLIMMING AIDS; **UNSATURATED FATS**
DED 27 Nov 2001

=> fil fsta
FILE 'FSTA' ENTERED AT 16:01:44 ON 25 MAY 2003

FILE LAST UPDATED: 20 MAY 2003 <20030520/UP>
FILE COVERS 1969 TO DATE.

=> d all tot

L138 ANSWER 1 OF 2 FSTA COPYRIGHT 2003 IFIS
AN **2002:A0082** FSTA
TI Starch sub-types and lipid metabolism.
IN Brown, I. L.; Storlien, L. H.; Brown, M. A.; Higgins, J.; Tapsell, L. C.
PA Penford Australia Ltd.; Penford, Lane Cove, NSW 2066, Australia
SO PCT International Patent Application, (2001)
PI WO 2001076394 A1
PRAI AU 2000-6733 20000406
DT Patent
LA English
AB A diet for the regulation of carbohydrate and fat metabolism is related which consists of replacing a proportion of the daily carbohydrate and saturated fat intake with **resistant starch** and unsaturated fat, respectively. Compositions comprising **resistant starch** and unsaturated fats and methods for their preparation are also given.
CC A (Food Sciences)
CT DIET; **FATS**; PATENTS; STARCH; **RESISTANT STARCH**; **UNSATURATED FATS**

L138 ANSWER 2 OF 2 FSTA COPYRIGHT 2003 IFIS
AN **2000(11):L0533** FSTA
TI Cutting-edge carbohydrates.
AU Voragen, A. G. J.
CS Dep. of Food Tech. & Nutr. Sci., Wageningen Agric. Univ., Wageningen, Netherlands. Tel. 31317-483209. Fax +31317-484893. E-mail fons.voragen(a)chem.fdsci.wau.nl
SO Prepared Foods, (2000), 169 (5) 137-138
ISSN: 0747-2536
DT Journal
LA English
AB Use of novel dietary carbohydrates, which function as prebiotics or fat substitutes, in foods is discussed. Aspects considered include: chemical and physiological classification of carbohydrates; non-digestible carbohydrates, such as inulin, which function as prebiotics and stimulate growth and/or activity of healthy bacteria in the colon, and which may repress pathogen colonization, growth or virulence; **resistant starch**, which is fermented in the colon resulting in increased faecal bulk, protection against colon cancer, improved glucose tolerance and reduced blood lipid levels; carbohydrate-based fat and sugar replacers (fat substitutes which are lipid- or fat-based macromolecules resembling triglycerides, and fat mimetics which are protein- or carbohydrate-based substances that imitate the properties of triglycerides); and the need for improved understanding of carbohydrate conversion in the intestine, and their role in normal cell processes and disease, in order to develop new health-promoting products.
CC L (Sugars, Syrups and Starches)
CT CARBOHYDRATES; **FAT SUBSTITUTES**; NOVEL FOODS; STARCH; PREBIOTIC FOODS; **RESISTANT STARCH**

=> d his

(FILE 'HOME' ENTERED AT 14:21:10 ON 25 MAY 2003)
SET COST OFF

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     FILE 'REGISTRY' ENTERED AT 14:21:20 ON 25 MAY 2003
L1             1 S STARCH/CN
L2             1 S AMYLOSE/CN
L3          2905 S STARCH
L4          2904 S L3 NOT L1
L5          2286 S L4 NOT SQL/FA
L6           517 S AMYLOSE
L7           516 S L6 NOT L2
L8           515 S L7 NOT SQL/FA

     FILE 'HCAPLUS' ENTERED AT 14:22:34 ON 25 MAY 2003
L9         57289 S L1
L10       122393 S L5
L11       137614 S ?STARCH?
L12       243481 S L9-L11
L13         4725 S L2
L14       134395 S L8
L15         9942 S AMYLOSE
L16       139113 S L13-L15
                 E BROWN I/AU
L17          169 S E3,E17,E36,E44,E45
                 E STORLIEN L/AU
L18           98 S E3-E8
                 E STOERLIEN L/AU
                 E BROWN M/AU
L19          312 S E3-E10
                 E BROWN MARC/AU
L20            1 S E4
L21           87 S E55-E60
                 E HIGGINS J/AU
L22          427 S E3-E26,E47,E48
                 E         TAPSELL L/AU
L23            5 S E4-E6
L24           48 S L12,L16 AND L17-L23
L25          185 S AMYLOMAI?
L26            5 S L17-L23 AND L25
L27           48 S L24,L26
L28           29 S L27 AND RESIST?
L29            2 S L27 AND (SUBTYP? OR SUB TYP?)
L30           29 S L28,L29
L31           19 S L27 NOT L30
                 SEL DN AN 1-5
L32            5 S L31 AND E1-E15
                 SEL DN AN L30 1-8 10 11 13 15 18 19
L33           14 S L30 AND E16-E57
L34           19 S L32,L33
L35           15 S L30 NOT L34
L36           19 S L34 AND L9-L35

     FILE 'REGISTRY' ENTERED AT 14:40:37 ON 25 MAY 2003
L37            1 S INSULIN/CN

     FILE 'HCAPLUS' ENTERED AT 14:40:39 ON 25 MAY 2003
L38            5 S L37 AND L36
L39            5 S ?INSULIN? AND L36
L40           19 S L36,L38,L39

     FILE 'REGISTRY' ENTERED AT 14:41:09 ON 25 MAY 2003
L41            2 S GLUCOSE/CN

     FILE 'HCAPLUS' ENTERED AT 14:41:21 ON 25 MAY 2003
L42            5 S L41 AND L40
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L43           5 S GLUCOSE AND L40
L44          19 S L40,L42,L43

     FILE 'REGISTRY' ENTERED AT 14:41:47 ON 25 MAY 2003
L45           1 S LEPTIN/CN

     FILE 'HCAPLUS' ENTERED AT 14:41:53 ON 25 MAY 2003
L46           1 S L45 AND L44
L47           1 S LEPTIN AND L44
L48          19 S L44,L46,L47
L49           6 S L48 AND (FAT# OR FATTY OR GLYCERID?)/CW
L50          13 S L48 NOT L49

     FILE 'HCAPLUS' ENTERED AT 14:45:59 ON 25 MAY 2003
L51           1 S ASP ?/AU AND 1997/PY AND (427 AND 201)/SO
L52           1 S EP0846704/PN
L53           1 S EP0550060/PN
L54           1 S EP0747397/PN
L55           1 S WO9735889/PN
L56           1 S EP0506166/PN
L57           6 S L51-L56 AND L12,L16

     FILE 'MEDLINE' ENTERED AT 14:50:28 ON 25 MAY 2003
L58           1 S KRIS ETHERTON ?/AU AND 2000/PY AND (7 AND 5 AND 333)/SO

     FILE 'MEDLINE' ENTERED AT 14:50:59 ON 25 MAY 2003

     FILE 'HCAPLUS' ENTERED AT 14:51:03 ON 25 MAY 2003

     FILE 'WPIX' ENTERED AT 14:52:17 ON 25 MAY 2003
               E WO200176394/PN
L59           1 S E3
L60          66 S A61K031-718/IC,ICM,ICS,ICA,ICI
L61       24409 S 1863/DRN OR R01863/DCN,PLE OR (V722 OR V723)/M0,M1,M2,M3,M4,M
L62        2744 S C08L003/IC,ICM,ICS,ICA,ICI
L63       41678 S ?STARCH?
L64           8 S ?AMYLOMAI?
               SEL DN AN L64 2 3 8
L65           3 S E1-E5 AND L64
L66           2 S AMYLO()(MAIZ? OR MAIS?)
L67       54121 S L60-L63,L65
L68           5 S L67 AND A61K031-202/IC,ICM,ICS,ICA,ICI
L69        8027 S L67 AND A23L001/IC,ICM,ICS,ICA,ICI
L70         225 S L69 AND A23L001-308/IC,ICM,ICS,ICA,ICI
L71         554 S L69 AND A23L001-30/IC,ICM,ICS,ICA,ICI
L72         402 S L70,L71 AND D03-H01T?/MC
L73        5430 S L67 AND RESIST?
L74         235 S L73 AND ?UNSAT?
L75          11 S L74 AND L68-L72
L76           7 S L75 AND D03-H01?/MC
L77          97 S RESIST? ?STARCH?
L78          45 S L77 AND L68-L72
L79           3 S L78 AND L74
L80          29 S L78 AND D03-H01?/MC
L81           3 S L59,L79
L82          26 S L80 NOT L81
L83          16 S L78 NOT L80
L84           1 S L77 AND L68
               SEL DN AN L68 1 5
L85           2 S E6-E9 AND L68
L86           4 S L81,L85
L87       54121 S L63-L67,L77
L88         947 S L87 AND (P731 OR P816 OR P814)/M0,M1,M2,M3,M4,M5,M6
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L89          493 S L87 AND (B14-E12 OR C14-E12 OR B12-J02 OR C12-J02 OR B14-S04
L90          202 S L87 AND (A61P003 OR A61P005)/IC,ICM,ICS,ICA,ICI
L91         1162 S L88-L90
L92           31 S L91 AND ?UNSAT?
L93           11 S L77 AND L91
                 SEL DN AN 2
L94            1 S E10-E11 AND L93
L95            4 S L86,L84
L96          366 S L91 AND (V722/M0,M1,M2,M3,M4,M5,M6 OR (B04-B01? OR C04-B01?)/
L97          366 S L96 AND L91
L98           15 S L97 AND L92
                 SEL DN AN 14
L99            1 S L98 AND E12
L100           5 S L95,L99
L101           2 S L97 AND L77
L102          55 S L97 AND D03-H01T?/MC
L103           1 S L102 AND L77
L104          44 S L102 NOT L68,L75,L76,L78-L86,L92-L95,L98-L101,L103
                 SEL DN AN 22
L105           1 S L104 AND E13-E14
L106           6 S L100,L105 AND L59-L105
L107          19 S L87 AND (BROWN I? OR BROWN M? OR HIGGINS J? OR STORLIEN ? OR
                 SEL DN AN 1 3 1-16 18
L108          17 S E15-E54 AND L107
L109          22 S L106,L108

     FILE 'WPIX' ENTERED AT 15:44:18 ON 25 MAY 2003

     FILE 'HCAPLUS' ENTERED AT 15:44:33 ON 25 MAY 2003
L110         748 S RESIST?()L11
L111           7 S L110 AND ?UNSAT?
L112         289 S L110 AND NUTRI?/SC,SX
L113          89 S L112 AND (FAT# OR GLYCERID? OR FATTY)/CW
L114          86 S L113 NOT L48-L50,L57
L115          86 S L114 NOT L111
L116           0 S L115 AND 63/SC,SX
L117           2 S L112 AND 63/SC,SX NOT L113-L116

     FILE 'MEDLINE' ENTERED AT 15:50:38 ON 25 MAY 2003

     FILE 'FROSTI' ENTERED AT 15:52:14 ON 25 MAY 2003
L118       19333 S STARCH?
L119        1143 S RESIST?(S)L118
L120          16 S L119 AND (POLYUNSAT? OR UNSAT? OR OMEGA)
                 E RESISTANT STARCH/CT
L121         288 S E3,E4
                 E E3+ALL
L122         679 S RESISTANT STARCH?
L123         679 S L121,L122
                 E UNSATURAT/CT
L124           0 S E5 AND L123
L125           2 S E14 AND L123
L126           0 S E19 AND L123
L127           0 S E23 AND L123
L128           0 S E25 AND L123
                 E E25+ALL
                 E UNSATURAT/CT
                 E E14+ALL
L129          21 S E2+NT AND L123
L130          34 S L125,L129,L120
                 SEL AN 1 7
L131           2 S E1-E2 AND L130
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     FILE 'FROSTI' ENTERED AT 15:58:24 ON 25 MAY 2003

     FILE 'FSTA' ENTERED AT 15:58:41 ON 25 MAY 2003
L132         417 S RESISTANT STARCH?
                 E RESISTANT STARCH/CT
                 E E3+ALL
L133         194 S E8
L134         417 S L132,L133
                 E UNSATURAT/CT
                 E E29+ALL
L135           1 S E5+NT AND L134
L136           8 S E4+NT AND L134
L137           8 S L135,L136
                 SEL AN 4 6
L138           2 S E1-E2 AND L137

     FILE 'FSTA' ENTERED AT 16:01:44 ON 25 MAY 2003
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